

FOREST POLICY AND ITS IMPACT ON THE RURAL POPULATION IN
UTTAR PRADESH HILLS

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PREFACE

Forests constitute an important natural resource and, therefore, play a crucial role in the process of development. They provide a number of economic as well as non-economic benefits. In terms of economic benefits forests provide us energy as well as timber which is utilized in various village level, small scale and other industries. Moreover, they provide employment to a large number of people. When we talk of non-economic benefits the role of forests in the amelioration of climate, conservation of moisture, soil conservation and flood control immediately spring to mind.

For a very long time man was ignorant of the multifaceted role of forests. It was presumed that our forest wealth was more than sufficient and so forests were cut down ruthlessly without caring for the adverse effects this would ultimately have on the environment. The first attempt at scientific management of forests was made in 1865 with the passing of the First Forest Act. In 1952 the National Forest Policy was announced with a view to manage forests in the best possible manner such that the twin objective of satisfying people's needs and environment control are both met.

The present study, carried out at the Giri Institute of Development Studies, Lucknow, tries to examine the forest policy in it's historical perspective and to find out the

impact it has on the rural population residing in U.P. Hills. It, therefore, tries to analyse the problems which the people are faced with and to offer some suggestions. During the course of the study various offices extended their co-operation to us. We wish to record our thanks to them.

First of all we wish to thank the Uttaranchal Development Department and the Directorate of Environment, Government of Uttar Pradesh, for providing the necessary funds to carry out the study. We are extremely thankful to the officers of the forest department at Lucknow, Pithoragarh and Nainital for providing the relevant data without which the study would not have been possible. Thanks are also due to Shri K.B. Srivastava, retired Chief Conservator of Forests U.P. for providing valuable insight into the aspects of forest policy, forest management and the problems faced by the people as well as the forest department.

The task of field work as well as coding and tabulation of primary and secondary information was efficiently carried out by Shri B.S. Koranga, Shri Arun Kuksal and Shri Vimal Kumar Pathak. It was through their hard work that the study could be conducted smoothly. Finally we wish to thank Shri Manoharan K. for handling the typing work very efficiently.

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CHAPTER I

Significance and Objective of the Study

Forests are a very important natural resource in any country and play a very significant role in the process of economic development. In a country like India forests have also held an important position even from the spiritual point of view since a number of saints have come out with famous philosophical works after years of meditation in the forests. The benefits which we receive from forests may be classified into two broad categories:

- (a) direct economic benefits; and
- (b) indirect eco-system improvement.

Direct Economic Benefits

Within this broad category there are a number of benefits such as:

(i) Energy Source

Forests are an important renewable source of energy. Energy is needed for various purposes such as industries and for non-commercial purposes by both rural and urban masses. In a country like India energy sources have a very wide range. On one hand we have the primitive sources such as dung cakes, agricultural waste and firewood. And when we think of the most advanced sources we

have in mind nuclear and solar energy both of which are being used although to a lower degree. However, even today firewood continues to be a major source of non-commercial fuel despite the fact that a substantial quantity of energy is produced by thermal and hydro-electric plants, lignite and oil. The National Commission on Agriculture (1976) had estimated that the demand of firewood would rise from 175 million m³ (in 1976) to 202 million m³ by 2000 AD. This ample proof of the significance of forests as a source of energy in India.

(ii) Employment Generation

Forests offer wide scope for employment generation since there are a number of forest based industries. These industries may be set up in an urban or rural areas. Wherever they are located they offer opportunities for providing gainful employment. The level of skill may vary from industry to industry so that these industries may provide jobs of skilled, semi-skilled or even unskilled nature.

(iii) Development of Cottage and Small Industries

A wide range of small scale and cottage industries such as bidi industry, resin tapping industry, rearing silk worms, lac, match splints, toys, tools handles, rope making, mat making, oil extraction from forest seeds, etc. can be easily developed around forest areas.

(iv) Other Industries

Not only do forests provide raw materials for the development of small scale and cottage industries but they also provide the basic inputs for various other industries as well such as paper industry, plywood industry, match industry, furniture, packing cases, tool handles, sports goods etc. They also provide wood for building the bodies of lorries and carts. Besides this, for years they have also catered to a very crucial need of the railways as well in the form of sleepers.

(v) Development of Tourism

Forests are the natural habitat of various wild life. In order to preserve them the government converts certain areas into wild life sanctuaries. These sanctuaries form centres of tourist attraction and, if properly developed, can play a vital role in the development of tourism.

(vi) From the human beings point of view the forests provide him with numerous things which he uses in his day to day life. To name only a few are furniture, paper, pencil, energy, herbs, etc.

(vii) Since forests provide so many products it is quite obvious that they are a very important source of revenue to the government.

These then are some of the tangible economic benefits that forests offer us. Besides these forests also confer a number of other benefits which may not be easy to quantify but which play a

very vital role in affecting the quality of life. A few such benefits are being indicated below:

(a) Amelioration of Climate

Forests help in the amelioration of climate by influencing temperature, rainfall, humidity and wind. Forest cover enables temperature - both air and soil - to become more equitable as compared to the open air. During the day forest cover restricts the temperature while at night it prevents loss of heat. Forests likewise also affect the rainfall. Although there is a dispute regarding the ability of forests to increase rainfall, but there is absolutely no doubt about the fact that forests do exercise considerable influence in increasing the number of rainy days at least over a limited region. By drawing up water from inside the earth and transpiring it in the atmosphere forests have a favourable effect on humidity. And finally, forests help in reducing wind velocity considerably. In this way they protect orchards and put a check on wind erosion.

(b) Conservation of Moisture

It has already been indicated that at least over limited regions forests can affect the distribution of rainfall. Over and above this role which they play forests also control the proper utilization of rainwater since they control its excessive run-off and force most of it to infiltrate into the soil. They, therefore, act like dams to store water. This water is later released when needed afterwards.

(c) Soil Conservation

Every year thousands of tons of top soil in India is washed down during the rainy season or blown away by winds. The top 13 centimetres of the soil is very valuable and needs to be protected. In this context forests play a very crucial role in soil conservation at three levels:

- (i) At the canopy level - At the canopy level the forest canopy prevents rain-drop erosion;
- (ii) At the ground level forests regulate rainwater run-off by absorbing it in the humous and the trees and shrubs create physical obstruction to the running water thereby checking erosion; and,
- (iii) Within the ground the roots of trees and shrubs holds the soil firmly thereby preventing loss of top soil.

(d) Flood Control

Forests control floods to a considerable extent as they prevent excessive run-off on the one hand and siltation of river beds on the other hand.

(e) Improvement of the Agro-Eco Systems

Forests interspersed in cultivated areas create conditions of diversity in the agro-eco system and so help in the establishment of natural food chains resulting in biological control of insects and other pests which destroy agricultural crops.

(f) Control of Environmental pollution

Population of India has been increasing at a fairly fast pace over the last four decades. This even increasing population gives rise to an increasing trend of pollution through increased carbon dioxide, carbon monoxide, sulphur dioxide, nitrogen oxides, dust, smoke and noise, etc. Forests are the most effective and best natural pollutant sinks. Their ability to perform this crucial function, however, depends on the forest area on one hand and the composition and condition of forests on the other.

It is, therefore, very clear that the indirect benefits which we derive from forests are various and very crucial if the quality of life is to be maintained. This role of the forests could be directly affected in a negative way if forests are allowed to be cut down indiscriminately. In fact this has been one of the neglected issues till quite late despite the fact that the significance of forests had been recognised and felt for a very long time.

Although man had all along been aware of the significance of forests, yet he did not give due consideration to the importance of forest conservation. This has also been true in the case of the forests in the hill region of Uttar Pradesh and has led to indiscriminate felling of trees with all the attendant consequences. As a consequence areas which were once full of rich forests have become barren and the very environment is in danger. The large scale deforestation has been caused by various activities such as mining, construction of roads, for industrial

purposes, clearing of forests for agriculture and for meeting fuel requirements. However, in recent years, increasing importance is being attached to forest conservation since this destruction of our forest wealth has led to various problems which call for immediate attention.

The main objectives of forest management in the hills are briefly outlined below:

- (a) To check the process of environmental degradation and provide suitable programmes through which the vegetational cover already destroyed can be compensated in the shortest possible time period;
- (b) To meet the fodder, fuel and timber requirements of the local population;
- (c) To meet the industrial needs of the different forest based industries not only located within the hill region but also outside it;
- (d) To create additional employment opportunities by setting up more forest based industrial units;
- (e) To increase the productivity of forests through the introduction of high industrial and commercial value species instead of the native species having a relatively low value without upsetting the ecological balance; and,
- (f) To implement schemes of ecological reconstruction such as soil conservation, afforestation and forest protection, etc. with the active co-operation of the people.

The policy requirements to achieve these objectives are contradictory and often tend to conflict with each other especially if they are to be realised simultaneously. For example, if we need to check ecological degradation an immediate ban needs to be placed on felling of trees in the forests. However, if the objective of making available fuel, fodder and timber is to be fulfilled then people have to be given the freedom to cut trees. Moreover, some of these objectives are not realisable even individually within the given socio-economic structure of the hill economy. For example, the demand of fuel wood, fodder and timber for local consumption and for industrial use is so high in Uttar Pradesh that the U.P. Himalayas are being deforested at a rate which exceeds their regeneration capacity as shown by S.L. Shah in his report "Ecological Degradation and Future of Agriculture in Himalayas", (Indian Journal of Agriculture Economics, Vol.XXXVIII, March, 1982). Consequently forest capital has been decreasing steadily year after year.

Even from the point of view of fodder requirement the prospects of the revival of forests are none too good. The cattle population of the hills in 1973 stood at 33.77 lakhs and was growing at an exponential rate of 1.8 per cent per annum. The report by S.L. Shah (already mentioned above) clearly indicates that even under ideal conditions the demand for fodder will far exceed supply thereby leading to conditions of perpetual shortages.

Likewise, human population of the hill districts of Kumaun and Garhwal was estimated at 45.36 lakhs in the Census of 1981. By the 1991 Census these figures stood at 53.74 lakhs. These hill districts are heavily dependent on forests for survival of their economy and social life. Despite the fact that forest conservation is essential not only for the well-being of the people of the hills but also of the plains, yet considerable deforestation has already taken place and has adversely affected both the soil and the climate.

The forest question, relating to economic use of the forest resources is not an issue which can, or should, be seen in isolation. In fact its solution lies within the general framework of economic and social reconstruction of the hill region. The planning process has so far failed to attain its goal. One finds that planning in the hills began in the form of unconnected and mutually interfering development schemes. Each department was merely content at achieving partial solutions through a set of unsynchronised schemes without taking into account the linkages with the economic process. Moreover, it was also observed that a number of schemes, which were not very successful, were even repeated.

Any scheme of socio-economic development, where forest planning is an integrated part must, therefore, try and find solutions to the problem of environmental degradation, employment generation, rising industrial demand for the different forest products, etc.

Objectives of the Study

It is in this context that the Giri Institute of Development Studies, Lucknow decided to undertake a short study to try and analyse the forest policy and its impact on the people of the hill region. The study was conducted with the following broad objectives:

- (i) to study the forest policy of the government in its historical perspective;
- (ii) to study and analyse the forest policy which is currently being followed;
- (iii) to analyse the problems faced by the rural population residing in the hill areas as a consequence of the ongoing forest policy with respect to procurement of fuelwood, timber, fodder, etc., and,
- (iv) to suggest suitable changes which can be brought about in the forest policy so as to meet the needs of the rural folk without deviating from the all important objective of maintaining the ecological balance of the hill region since ecological balance is crucial from the national view point.

Methodology and Data Base of the Study

The study is based on secondary information as well as primary information. Data regarding area under forests etc. were collected from the Forest Offices located in Lucknow, Pithoragarh and Nainital. The study is based on primary information collected

from district Pithoragarh. Since it was a short study we selected two villages of Pithoragarh. One village had a reserved forest and the other had a Panchayat Forest. This was done in order to try and find the distinct problems faced by people in the different categories of forests. A total sample of 59 households was selected from the two villages.

For the literature related to the forest policy we consulted the library of the Forest Department, The Gird Institute library and other published material.

In addition to this we also had discussions with the forest officials at Pithoragarh and at Lucknow. Besides this we also had a discussion with Shri K.B. Srivastava, retired Chief Conservator of Forests U.P. and he provided some very useful insight into the evolution of forest policy as well as on the problems which the forest department faces in carrying out its task of forest management along with the types of problems which the local population of the hill region has to face.

CHAPTER II

Forest policy in Its Historical Perspective

The forest policy deals with social and economic aspects of forests and covers a very broad range. On the one hand it has to give due consideration for the users and so has to legislate accordingly keeping in mind their interests. On the other hand it has to enter the field of silviculture where the focus is on growing those forest crops in the most economical way which are best suited to the interest of the forest policy. Forestry is basically different from agriculture since trees take a long time to mature and so they have to be cared for over long periods of time. Thus the state must lay down a policy to secure, in perpetuity, the demands made on the forests in the interest of the community as a whole. The policy should be such as to provide for stability in forest finance and aim at securing the highest degree of uniformity possible.

Since times immemorial man's struggle for existence has been his struggle to reclaim forests for cultivation. Thus one of the urgent needs of policy is to strike a balance between land under forestry and cultivation in keeping with the long-term interests of the national economy.

There was a time with items like steel, cement and coal were not known in India. Thus timber, particularly teak was in demand for all purposes. Forests were heavily exploited by traders and

the methods of extraction employed were highly wastely. Besides this, even forest fires were a very common phenomenon. One of the first steps taken by the government was to declare teak as a reserved tree and the first teak plantation was begun in 1342 at Nilambur in Madras. Soon after that a survey was conducted with the aim of demarcating the more valuable forests. However, effective forest management based on sound scientific forest management could be put into effect only after trained forest officials were available. The work of building up the forest estate commenced around 1865 and this included establishment of protective measures, preparation of working plans, study and application of silviculture, building of roads and the beginnings of research.

The year 1865 also witnessed the passing of the Indian Forest Act. The act was later revised in 1878 and 1927. The Forest Act defined the legal status of forests and laid down the procedure for the reservation of forests. The aim of the act was to attain forest management on the standards obtained in Western Europe. To achieve this objective it was felt that three important principles had to be followed.

- (i) that research was very crucial if progress was to be achieved;
- (ii) that proper working plans were to be prepared if forests were to be managed properly; and,
- (iii) that forests should be managed in such a manner which ensure sustained annual yield.

This sound reasoning led to very favourable results. There was high efficiency in research and application of silviculture practices. Over 30 per cent forests were under working plans and adequate attention was paid on the training of forest officials of different cadres. The Forest School, now known as the Forest Research Institute, Dehradun, was inaugurated in the year 1878 under the aegis of the Survey of India.

In 1894, the government of India made a pronouncement on forest policy in their resolution contained in Circular No.22F and set out five important principles:

- (a) that the retention of sufficient forests to preserve the climatic and physical conditions of the country come before anything else;
- (b) that the need for securing sufficient forests for the general well-being of the people comes second in importance;
- (c) that cultivation comes before forestry, but it must be genuinely permanent cultivation and must not reduce forest lands below the minimum requirements of the country;
- (d) that the satisfaction of the wants of the rural and local population free or at concessional prices comes before revenue; and,
- (e) that after all the above have been satisfied, revenue should be realised to the fullest possible extent.

We, therefore, notice that this pronouncement was an excellent document as it was compact yet all encompassing. The terminology ecological balance may not have been in vogue then but the policy makers adequately stressed on it by mentioning that forests be retained to preserve the climatic and physical conditions of the country and that this aspect was accorded top priority. The masterminds gave due importance to forests by laying down a minimum forest area. Thus they had a deep insight into the land use principle as well. In addition to this even the welfare aspect was given due weightage by mentioning that the want of the local population be satisfied either free or at concessional rates. Although revenue aspect was duly considered, yet it was to follow only after the other more important objectives had been achieved.

This circular also classified forests on the basis of these principles. The classification also included the grazing value of forests. However, in actual practice the classification was more of academic value. The pronouncement also stated that state forests are managed solely for public benefit and that the principle of the greatest good of the greatest number should prevail. All provincial governments accepted these principles and it was left to them to interpret them in terms of more detailed policy, depending on local conditions.

During the initial stages of forest management not many people were aware of the many-sided value of forests nor did they realise that forests were a national asset. By and large people

felt that forests were more than adequate for the needs of the country except for a few hardwood species. This was so since not many had knowledge of the economic conditions and requirement. Thus no clear cut forest policy was evolved by local administration.

The forest officers made very praiseworthy efforts in trying to make a satisfactory compromise between the conflicting requirements of the local people and forest conservation needs. They also prepared well chalked out working plans. However, many a times sound tenets of forest conservation were sidelined for public interest. Thus one of the chief evils of a lack of clear cut policy was that whenever the forest officials tried to give a practical effect to the policy they were viewed with hostility and suspicion by the people. Had there been a sound forest policy much more could have been achieved.

The forest policy initially was intended to be applied only to state forests and the privately owned forests, whose extent was not even properly known, remained outside its purview. In the hill areas the concept of conserving forests was generally incompatible with subsistence farming so people were opposed to the idea of reservation of forests which they traditionally looked upon as their own and in large areas people had already been enjoying various rights. After the delimitation of reserves, other classes of forests such as protected forests, unclassified forests, undemarkated forests and unreserves were also constituted with the primary function of meeting local requirements and they constituted a considerable portion of the total forest area under

the government. Rules were laid down to regulate the cutting of trees but they failed to prevent the over-utilization of these forests. No genuine assessment was made of the local requirements since it was probably felt that these forests along with privately owned ones were sufficient to fulfil the demands. The basic fact which was overlooked was that not only the valuable timber forests but all the forests from which sustained yield of produce is required, must be allowed to regenerate naturally or be regenerated. Possibly this aspect too could have been taken care of if the government of India, while laying down its policy, had given instruction to the provincial governments to assess the existing conditions. As a consequence of this shortcoming there was a steady depletion of the growing stock of all classes of forests which were set aside for catering to local needs and as a result the pressure on the reserves increased. Although the government of India kept pointing to the need of establishing fuel and fodder reserves very little was done in this direction. The result was that those provinces which adhered to the policy had good results while in those provinces where the policy was not taken seriously one witnessed deterioration, if not destruction of forests.

Even the grazing problem was not solved and excessive grazing posed a major obstacle to the regeneration of forests.

It is, therefore, clear that despite the fact that a valuable forest estate had been built the forest policy was, generally, insufficiently objective and was not sufficiently alive to the

realities of the time. It should have been approached on an all-India basis rather than left to the individual provinces.

Keeping in view those various facts Mr. A.P.F. Hamilton in his note prepared for the Ministry of Agriculture pointed out that forests are economically one, although divided by political or geographical boundaries. They are a national asset held in trust for the people and should, therefore, be managed through a national policy. Although the past policy itself was sound in principle, it was given limited application. In his view the forest policy must look after the economic as well as the social aspects of forests, that it must legislate for financial stability and continuity of action since forest crops take a long time to mature. For all this a well trained and contented staff is required in adequate numbers. Equally important is the need to educate people properly so that they are fully aware of the significance of the forests and the need for their conservation.

In 1944 Sir Herbert Howard wrote a note on Post War Forest Policy for India wherein he too pointed out that although the principles of the Forest Policy of 1934 were excellent, the classes of forest policy were not exclusive and had nothing to do with the legal classification under the Act of reserved, village and protected forests. It went on to say that the four-fold classification of forests - protection, timber, minor forests and pastures is not exclusive since some forests may fall in many classes. Moreover, the forest policy does not mention the principle of sustained yield. The principle of sustained yield is required because:

- (a) a stable industry can not be established with excessive fluctuations;
- (b) such a large number of people are directly or indirectly dependent on forests for their livelihood that fluctuations would adversely affect their social conditions; and,
- (c) the government budgets necessitate approximately equal revenue.

The policy also does not prescribe the minimum forest area which is necessary for the well being of the country.

In 1940-41 forests occupied only 14 per cent of the total area and of this only 9.3 per cent were classed as maintainable. As against this the area under forests in the European countries was around 25 per cent. Thus the forest area for India should be around 20-25 per cent and this must be properly distributed over the provinces.

Some of the methods suggested for increasing the forest area were:

- (a) by bringing more government wastelands under forests;
- (b) by bringing more private area under forests; and,
- (c) by exercising legal control over private forests.

The plans of forest management received a set back as a result of war fallings. Prior to the war the position of reserved forests was favourable. Working plans legislated for periodic stock taking and, although forests were not fully productive, they had progressed as nearly as could be expected over the 30 years

since the forest department had taken over a depleted and often ruined forest estate. Before the war all of the more valuable forests had been covered by adequate and up-to-date working plans.

Although war fellings were considerable, even then these had not hurt the climatic and physical functions of the reserve forests. However, they had critically upset the working plans position and called for a rapid revision of most working plans after the war. Maximum felling had taken place in the United Provinces, Punjab, Central Provinces, Bombay and Madras.

Forestry is a sector which involves very heavy investment and the investment has a long gestation period. Trees may take anything from 50-150 years to mature and so it is not possible for individuals to go in for such types of investments. Thus ideally the government should take over all the forests as protection forests so as to make up the minimum estimated forest needs. But this could interfere with the rights of the individual owners. In such a case privately owned forests should be subjected to certain forms of government control keeping in view the minimum area under forests.

The main difficulty lies in fulfilling the legitimate demands of the ordinary village consumers who, at present, have no forest land near them to fulfil their wants. These people can not get sufficient forest produce for even their minimum needs and cowdung which is used as fuel. Cowdung is used excessively as fuel although a much better use of it is as manure.

It was with this background that Sir Herbert Howard suggested that there ought to be greater control over the privately owned forests. Some of the suggestions offered in the paper were:

- (a) that prevention of mere destruction of forests without any good management particularly in the case of protection forests was inadequate. So stress should be laid on proper forest management;
- (b) there should be effective policies to prevent the practice of trading in woodlands;
- (c) regeneration of felled areas within a specified time should be made compulsory;
- (d) there should be compulsory management on the method of sustained yield;
- (e) there should be restriction on the rotation of felled trees; and,
- (f) there should be proper control over the actual silvicultural operations.

We, therefore, observe that the history of forest policy in India dates back to the British period. Scientific forest management in India owes its inception to Dr. Brandis who was engaged by the Government of India in 1856. He was appointed the first Inspector-General of forests in 1864 and the first Forest Act was passed in 1865. This was later replaced by the more elaborate provisions of Act VII, 1873 and Act XVI of 1927. Thus the foundations of the existing forest policy which governs the management of forests in India were laid in 1865. In 1893 Dr. Voelcker stressed the need to formulate a forest policy and

this was duly declared on October 19, 1394 through the Government of India resolution No.22-F and constitutes the basis for the forest policy of India.

By the eve of Independence various developments of far reaching importance had taken place since 1394. First and foremost the population had gone up considerable and consequently there was a relentless pressure on forests and wastelands to secure more and more land for agriculture. At the same time the significance of forests from the point of view of mitigating the rigours of climatic conditions had been better understood. The significance of forests was fully realised not only from the point of view of conservation of moisture, prevention of erosion, and increase in rainfall but also from the point of view of development of agriculture, industry and communications. The world war led to the heavy depletion of forests to ensure war supplies. The post war schemes of reconstruction involved industrial expansion, river valley projects, electricity schemes and the development of communications. All these again kept up the relentless pressure on forests. The emergence of free India brought about revolutionary changes in the political field as well. In view of these facts it was essential to urgently reformulate the national forest policy to suit the changed circumstances.

The new approach to the national forest policy was initiated by Shri K.M. Munshi, who, on assuming office as the Minister of Food and Agriculture in the Union Government reminded everyone that the forests deserved immediate attention. The new approach

was not only defined but active steps were also taken in pursuance of it.

While speaking on the occasion of the first van mahotsava in June 1950 he drew attention to the significance of our forests in the backdrop of our cultural heritage by citing the examples of the various Ashrams, and Tapovans. He also pointed out that we have been ungrateful to our heritage as we are cutting down trees without planting any. The van mahotsava evoked great response and about 4 crore trees were planted. An equal number was planted during the mahotsava in 1951.

Shri K.M. Munshi also emphasized the intimate connection between the van mahotsava and the Grow More Food Campaign by pointing out that forests are not a mere handmaid of agriculture since forests are an inexhaustible reserve for providing subsistence to millions of people. "Trees mean water, water means bread, and bread is life". He pointed out that if fuel trees are in adequate supply then people will not have to use cowdung as fuel. Instead the cowdung can be utilized as manure thereby reduce our imports of fertilizers and save precious foreign exchange. He, therefore, requested all state governments by law or executive orders to see that all wastelands unfit for cultivation, are planted with quick growing fuel trees.

The Central Advisory Board of Forest Utilization was reconstituted to secure liaison between research and industry. At the same time the Forest Research Institute, Dehradun was also reorganised.

The Board of Forestry at the ministerial level was constituted so as to integrate the Forest Policy in order to come up with a National Forest Policy. It was felt that while the concepts underlying the existing policy still hold good, the need has arisen for re-orientation of the forest policy in the light of changes which have taken place since it was enunciated.

The National Forest Policy was announced on May 12, 1952 and it was stated that the policy is formulated on the basis of six paramount needs of the country, namely:

- (a) the need for evolving a system of balanced and complementary land use, under which each type of land is allotted to that form of use under which it would produce most and deteriorate least;
- (b) the need for checking:
 - (i) denudation in mountainous regions, on which depends the perennial water supply of the river system whose basins constitute the fertile core of the country;
 - (ii) the erosion progressing apace along the treeless banks of the great rivers leading to ravine formation, and on vast stretches of undulating wastelands depriving the adjoining fields of their fertility;
 - (iii) the invasion of sea-sands on coastal tracts, and the shifting of sand-dunes, more particularly in Rajputana desert;

- (c) the need for establishing treelands, wherever possible, for the amelioration of physical and climatic conditions promoting the general well-being of the people;
- (d) the need for ensuring progressively increasing supplies of grazing, small wood for agricultural implements, and in particular of firewood to release the cattledung for manure to step up food production;
- (e) the need for sustained supply of timber and other forest produce required for defence, communications and industry; and,
- (f) the need for the realisation of the maximum annual revenue in perpetuity consistent with the fulfilment of the needs enumerated above.

These needs indicate the functions forests are to fulfil and provide the fundamental basis of the policy governing their future. It may be noted that the earlier forest policy had clearly stated that "the satisfaction of the wants of the rural and local population free or at concessional rates comes before revenue". This aspect was not no longer a part of the new policy.

The forests in India whether state or privately owned were to be classfed as follows:

- (a) Protection forests - those forests which must be preserved or created for physical and climatic considerations;

- (b) National forests - those forests which have to be maintained and managed to meet the needs of defence, communications, industry and other general purposes of public importance;
- (c) village forests - those which have to be maintained to provide firewood to replace cowdung for manure and to yield small timber for agricultural implements and other forest produce for local requirements, and to provide grazing for cattle; and
- (d) Tree-lands - those areas which though outside the scope of ordinary forest management are essential for the amelioration of the physical conditions of the country.

It must be pointed out that these classifications are illustrative and not mutually exclusive. Every forest, in fact, performs more than one function and has, therefore, to be so managed so as to achieve highest efficiency in respect to the chief function assigned to it. The functional classification was deemed desirable to focus attention on the kind and object of management necessary in each case. Every sizeable forest, whatever be its composition, location, or category, serves both a protective and productive purpose and in its utility may be of local, regional or national significance. And since forests are of great national significance they should be administered from the point of view of national well-being irrespective of their functions and ownership.

The policy resolution went on to add that two considerations, although plausible at first sight, should not be given undue weightage but should be combated. These being:

- (a) Claims of neighbouring communities - Villagers living in close proximity of forests will naturally make greater use of its products for the satisfaction of their wants. But such use should not be permitted at the cost of national interest. The scientific conservation of a forest inevitably involves the regulation of rights and the restriction of privileges of users, depending upon the value and importance of the forest, however irksome such restraint may be to the neighbouring areas. Thus the needs of the local population must be met to a reasonable extent but the national interest should not be sacrificed.
- (b) Relinquishment of forest land for agricultural purposes - the indiscriminate extension of agriculture at the cost of destruction of forests has not only deprived the local population of fuel and timber, but have also stripped the land of its natural defences against dust-storms, hot desiccating winds, and erosion. The old policy, which envisaged the relinquishment subject to certain safeguards honoured only in their breach, of even valuable forest land for permanent cultivation. This led to deterioration of physical conditions and so needs to be given up.

The correct solution of the land problem lies in evolving a system of balanced and complementary land use, under which each type of land is allotted to that particular use under which it will

produce most and deteriorate least. It was realised that the proportion of land to be kept permanently under forests would vary according to different regions. It was felt that the country as a whole should maintain one-third of its land area under forests. As an insurance against denudation around 60 per cent of the land should be kept under forests for their protective functions in the Himalayas, Deccan and other mountaneous tracts liable to erosion. The percentage for the area of the plains was fixed at 20 per cent. In view of the pressures of agriculture it was felt that extension of tree lands should be concentrated on river banks and other convenient places not suitable to agriculture. Localities deficient in forests were expected to undertake afforestation of marginal lands and eroded river and village wastelands. In case the forest area exceeded the laid down proportions, they were not to be sacrificed. In order to maintain the overall average the states better suited to tree growth should compensate for such states which are deficient from this angle.

Grazing

The national forest policy expressed the view that the controversial question of grazing in state forests calls for a clear definition of policy. Despite the fact that grazing is not compatible with scientific forestry it does take place and this has to be accepted as a hard fact. In certain circumstances moderate grazing does little harm, and may do an indirect good by reducing the risk of fire and in suspending regression at a desirable stage. But grazing has to be regulated as regards the

time and place, as also the number of cattle admitted. Thus the following factors should be kept in mind:

- (a) Continuous grazing by large herds on the same area is destructive. Thus rotational grazing be introduced.
- (b) Cheap forest grazing has a demoralising effect and leads to the vicious spiral of reckless increase in the number of cattle, inadequate forest grazing, reduced quality of herds and further increase in the numbers to offset the fall in quality. Thus free and indiscriminate forest grazing is a disservice to cattle breeding.
- (c) Grazing should not be looked upon primarily as a source of revenue. But the simple and obvious way of regulating and controlling grazing can be done through instituting a reasonable fee for the privilege of grazing.
- (d) No grazing be allowed in regeneration areas and young plantations during the period when seedlings need to establish properly or they will be destroyed.
- (d) Grazing should be at a minimum in the protection forests.
- (e) There should be restriction on the grazing of sheep and total exclusion of goats. The creation of special fodder reserves under strict rotational control is advised for this purpose.

With a view to conserving forest resources in perpetuity, the new forest policy requires scrupulous regard for sustained yield in the management of all classes of forests. The fluctuations in

the annual out turn of forests upsets state budgets, industries and other national enterprises. Thus all working plans should aim at confining them within the narrowest limits. To achieve this each state should set up a permanent organization to deal with working plans and to conduct detailed survey of available forest resources which are a sine qua non for a sound forest management. The forest policy also laid stress on forest administration, forest legislation, forest education and forest research.

As the years passed by after the National Forest Policy was announced in 1952 there was an ever increasing demand on fuel and fodder and other forest produce. The forest department started finding it increasingly difficult to maintain the desired level of security in the forest areas and as a result there was steady depletion of forests which endangered the very crucial aspect of maintaining the ecological balance. This, therefore, called for further amendments in the forest policy and this was brought about in 1983. The main objectives are being briefly outlined below:

- (1) Maintenance of environmental stability and the restoration of ecological balance.
- (2) To protect the national heritage through the preservation of flora and fauna of the forests.
- (3) To devise means for the preservation of soil and water resources in order to guard against both floods and drought.
- (4) To check the expansion of sand dunes in the desert areas of Rajasthan and along coastal highways.

- (5) To reclaim the inferior and uncultivable land through afforestation thereby increasing the forest area.
- (6) To meet the fuel, fodder, small timber and other minor forest produce requirements of the village population as well as of the tribal population.
- (7) To increase the productivity of the forests in keeping with the growing national requirements.
- (8) To increase the efficient use of forest products and to decrease the use of timber and fuel through increased supply of alternatives to timber and fuel.
- (9) So as to achieve the above mentioned goals and to preserve forests an extensive mass movement through the active co-operation of women is to be launched.

In order to achieve these objectives the following aspects of forest management are essential:

- (a) Forest and forest land must be fully protected and their productivity must be increased. The area devoid of forests, deserts and hilly slopes must be provided with vegetation cover at a fast pace.
- (b) The cutting down of forest area so as to convert it to agricultural use for the fulfilment of food grains requirements of the masses should be absolutely discouraged.

- (c) The National Parks should be extended so as to preserve the physical diversity.
- (d) To encourage afforestation near rural areas so that the needs of the rural population can be met. In this way the pressures on the existing forests will be checked and forest wealth will remain preserved.
- (e) To provide for the food and meat and the employment needs of the tribal population and those living near forests through protection of forests and by increasing the productivity of minor forest products.

In order to attain these various goals it becomes necessary to initiate a number of programmes. Programmes should be launched to grow fuel providing trees and fodder crops on wastelands, to develop trees along canals, railway tracks, highways, rivers and afforestation of lands which are under state corporations and autonomous organisations. To plant trees on gram sabha lands which have not been put to other uses. There is also the need to make amendments in the land laws.

As had been in the case of the National Forest Policy of 1952, even the amended forest policy of 1983 laid stress on factors such as people's rights, which were to be met through social forestry and increased productivity, on the conservation of wild life, the supply of forest products to the various forest based industries, development of forests through people's active co-operation, forest education and research and proper legislation in order to make forest management effective. The policy

statement also stressed the need on developing a proper data base such that the programmes of forest development may be backed by adequate data and carried out on scientific lines.

This, therefore, is a brief resume of the developments which have taken place in the forest policy of India starting from the British period and upto the amended National Forest Policy of 1933.

Forests and Forest Policy in the Context of U.P. Hills

Conflicts over forest claims were very common in the hills during the British rule as they were supposed to infuse a spirit of dissent against the British. The history of forest administration during the British period in the hills may be divided into four periods.

- (a) 1815 - 1873 - The British occupation of Kumaun and Garhwal was in 1815 while 1873 was the year when the Forest Act was passed. During this period village boundaries were demarcated within which each village exercised its rights of grazing, timber collecting and collecting fuelwood. There was no system of conservancy and so the most valuable forests were indiscriminately cut down by government contractors.
- (b) 1878 - 1893 - The boundaries of different forest tracts in Almora, Nainital and Garhwal were demarcated and declared as protected forests. Since these forests were situated in the Bhabhar region at the foot hills they did not affect the

daily life of the average villager in the hills. It was actually towards the end of 1893 when all wastelands were notified as protected forests and the government adopted a policy of forest conservation.

- (c) 1894 - 1911 - In 1894 legislation was passed for the preservation of deodar, cypress, chir, box, sal, shisham, tun and khair. The government issued further instructions through which the protected forests were classified as 'closed civil forests' and 'open civil forests'. The District Magistrate was to look after the rights and concessions of the villagers in the closed civil forests while in the open civil forests villagers could exercise their rights without any interference.

In 1910 the government held a meeting on forest management and a new settlement of forests commenced in 1911. Forests were classified as : A Class - those which were primarily for the fulfilment of the requirement of the local people and for sale of forest produce. These forests were under the forest department for protection. B Class - These forests were meant for the preservation of fuel and grass. These again were under the control of the forest department but the controls were less severe. C Class - These forests were on the remaining forest land. These were not under the control of the forest department and so the people had full rights regarding timber, fuel and grazing.

- (d) 1911 - 1947 - During this phase the British policy was mainly to survey, examine and demarcate extensive areas of trackless forests, populated only by wild animals, to organise its protection against fire and other damage, to enumerate its valuable trees and enlarge for their judicious exploitation, to record minutely, in conjunction with civil authorities, all existing rights and to wage a perpetual war against uncontrolled grazing, theft and indiscriminate felling by contractors.

The people of the hills relied mostly on the forests and forest produce. Prior to the schemes of forest management the people had absolute rights over them and so with the inception of scientific control and management the local people resented them as they felt that their rights were being encroached upon. Moreover, no information was sought into the requirements of different villages before launching the forest policy and little compensation was awarded to those claimants whose rights were disregarded. The first signs of serious resentment showed up in 1906 in the state of Tehri Garhwal. A forest around 14 miles from Tehri town was being inspected preparatory to being brought under reservation. The forest officials were driven away and even the local king could not control their wrath.

Resentment had also been brewing up in Kumaun because of the preferential treatment given by the British to a particular class. In 1907 a mass meeting was held in Almora but nothing fruitful was achieved. To show their anger people started burning down forests. In 1916, the Kumaun Association was formed to deal with

the forest problems of Kumaun with Pandit G.B. Pant as its general secretary. He presided over its last annual session in 1921 and he was the first to publish a report voicing the popular demands of the people of the hill region. The government appointed a committee in 1921 to look into the grievances of the people of Kumaun and Garhwal. The Kumaon Grievances Committee reclassified forests into Class I and Class II forests. The former category were under the direct control of the District Magistrate while the second were under the control of the forest department. The Committee also recommended that forests left for the villagers be placed under the Panchayats

The basic purpose of the Committee was to give a free hand to the villagers regarding felling of trees. Thus during 1924-25 and 1925-26 maximum deforestation took place. The Class I forests were handed over to the Revenue department. This was a big mistake because although people's resentment ended for some time but it led to negative effects which were felt later. The Class I forest started deteriorating very rapidly because of lack of protection and overfelling. This mistake was rectified in 1964 when the Class I forests were transferred to the Forest department.

The next wave of forest unrest coincided with the Civil Disobedience Upsurge (1930-31). There were forest fires and the forest department employees faced physical violence. In 1939 the question of rights and concessions in the hills was raised again. A Grievances Committee was set up and its report was published in

1939. The district committees relaxed grazing rights and made recommendations relating to:

- (a) improvement of communications;
- (b) fresh demarcation of forest boundaries;
- (c) settlement of shilpkars;
- (d) extension of resin industry in Garhwal;
- (e) arms licenses;
- (f) sawyers; and,
- (g) introduction of pig and porcupine traps.

Another legislation dated March 22, 1941 further relaxed grazing rights. These rules damaged broad leaved forests to a great extent. Chir forests also suffered and so did the regeneration receive set back in blue pine, cyprus and deodar forests. There was no change in the forest policy upto 1947 yet a legacy of suspicion and resistance was created between the people and the authorities which even the independence could not entirely cure.

After independence another committee was set up under Shri Bildev Singh Arya for the redressal of their grievances and this too gave further concessions to the village population. Thus the problems of the forest had no respite even after independence.

Then between 1970-80 the hills witnessed the 'Chipko Movement' led by Shri Sunderlal Bahuguna who fought against the indiscriminate felling of trees, excessive resin tapping and over extraction of medicinal plants. These activities had increased since prices had gone up considerably and so led to tremendous

profits. In the wake of these profits a large number of persons had entered the trade. Excessive resin tapping led to the destruction of trees whereas the over extraction of medicinal plants created the fear of extinction of various plants.

In 1976 the Five Point programme of Sanjay Gandhi was introduced and the government decided to stop green felling completely. Resin tapping was considerably checked so that it was reduced to around one-third of what it used to be during its peak. At the same time attention was also paid to check over extraction of medicinal plants. Those species which were on the verge of extinction were prohibited from being extracted.

Forest land for non-forestry purposes was being given upto 1930. But in 1930 government of India passed a Forest Conservation Act. It was a two line act which states - "No forest land will be given for non-forestry purposes without the sanction of the Government of India". The non-forestry purposes include cultivation, grazing, industry and housing, etc.

The forest conservation act has certainly led to some difficulties. It has not only affected the lives of the people in the hills in general but many a times it proves a bottleneck in the implementation of certain development plans such as the construction of roads, bridges, hydel lines and pipelines, etc. This is so since wherever any of these schemes are passing through the forests they can not be taken up unless permission is duly obtained from the forest department. This at times causes unnecessary delay.

The scheme of any department which passes through a forest area has first of all to be submitted to the D.F.O. of the concerned area. The D.F.O. examines the proposal and after making his comment passes the proposal to the conservator. The conservator after going through the same passes it on to the Nodal Agency if he feels that the project should go through. Once the Nodal Agency also approves of the scheme the proposal is finally sent to the Government of India, Ministry of Environment where a Committee established for this purpose goes through the proposal and it either accepts the proposal, rejects it or gives alternative suggestions. Thus the proposal has to pass through various hands and this becomes a cumbersome and time consuming process. However, if the concerned department acts on a timely basis rather than waiting till the very last moment, the project can get clearance by the time project work is to begin.

Coming to the people's concern it is found that after green felling has been stopped the people's rights can not be met if dry timber and twigs are not available in accordance with their demand. While the people's demands were easily met earlier to the extent that they had some timber to spare even after meeting their needs and this they could conveniently sell. However the situation today is that while rights do exist the population has gone up to such an extent that the supply is much short of the demand and so the hill population is put to considerable problem.

While the forest policy may have placed people to certain degree of inconvenience particularly in the hills, its

significance in the case of the hills is very significant since the hills have their own peculiarities. First of all any further adverse condition of the hills will immediately affect the environment. Thus, while on the plains the forest department clearance could possibly be by passed for the construction of say roads, but the same can not hold good in the case of the hills.

CHAPTER III

The Forests of U.P. and Its Hill Region

As has already been indicated in the earlier chapters, forests play a vital role in providing various products for human and livestock consumption. A large number of persons are directly or indirectly dependent on forests for their livelihood on the various forest products. Above all, forests play such a crucial role in maintaining the ecological balance through their control over climate, soil erosion, floods and droughts, etc. It, therefore, is mandatory to have adequate forest cover and to preserve the same by keeping forests healthy through scientific forest management.

If we look at the land use statistics of Uttar Pradesh (Table III.1) we observe that area under forests was 3194 thousand hectares during 1950-51. This worked out to be 10.32 per cent of the reported area. By 1960-61 the percentage of area under forests stood at 12.36. It went up considerably by almost four percentage points to 16.62 by 1970-71. In 1937-38 the total area under forests was around 17.27 per cent of the total reported area. There was, therefore, not much difference between the share of forests in the land use pattern between 1930-31 and 1967-68. In fact even in absolute terms forest area during this period had increased by only 15 thousand hectares. Thus between 1950-51 and

Table III.1 : Land Use Statistics of Uttar Pradesh

(Area in '000 hectares)

Land Use	1950-51	1960-61	1970-71	1980-81	1987-88
Reported Area	29,253	29,495	29,806	29,739	29,733
Forests	3,194 (10.92)	3,794 (12.86)	4,953 (16.62)	5,129 (17.25)	5,144 (17.27)
Barren & Uncultivable Land	2,837	2,591	1,418	1,141	1,067
Land put to non-agricultural uses	1,353	1,912	2,034	2,230	2,406
Cultivable waste	2,311	1,639	1,345	1,143	1,099
Permanent Pastures & other Grazing Land	NA	44	77	236	349
Trees Shrubs Orchards	1,414	932	1,260	639	532
Current Fallows	1,078	1,738	870	1,169	1,195
Other Fallows	290	1,260	545	716	356
Net Area Sown	16,231	17,183	17,305	17,221	17,135

Source : (a) Uttar Pradesh Ke Arthik Shetrawar Aankre (1979), Agricultural Directorate, Lucknow. For data related to 1950-51 and 1970-71.

(b) Statistical Diary of U.P. 1982 and 1989, Economics and Statistics Division, State Planning Institute, Lucknow for 1980-81 and 1987-88.

1987-88 the total forest area of the state had gone up from around 3194 to 5144 thousand hectares and the forest area as a percentage to total reporting area had increased from 10.92 to 17.27 per cent respectively during the same period. It is quite clear from these figures that the area under forests in U.P. were much below the norm laid down by the National Forest Policy of 1952.

Table III.2 : Districtwise Area Under Different Categories of Forests in the Hill Region of Uttar Pradesh (1987-88)

(Area in Sq. Km.)

District	Area Under Forest Department		Civil/ Soyam Forest	Panchayat Forest	Individual Municipal & Cantt. Forest	Total Forest Area
	Total	Reserved				
Almora	1471.97 (37.54)	1471.97 (37.54)	1321.00 (46.44)	527.99 (16.01)	0.52 (0.01)	3321.43 (100.00)
Pithoragarh	1379.44 (41.73)	1317.20 (39.83)	1210.00 (35.54)	714.45 (21.53)	-	3302.99 (100.00)
Nainital	3525.02 (89.59)	3512.53 (89.25)	192.00 (4.74)	207.57 (5.13)	21.95 (0.54)	4047.64 (100.00)
Garhwal	2391.65 (53.51)	2373.76 (52.75)	1306.00 (40.13)	295.40 (8.59)	6.07 (0.13)	4500.12 (100.00)
Chamoli	3539.12 (59.94)	3539.12 (59.94)	1043.00 (20.04)	521.49 (10.02)	-	5203.61 (100.00)
Tehri Garhwal	2694.25 (57.83)	2694.25 (57.83)	1277.74 (32.17)	-	-	3972.00 (100.00)
Dehradun	1506.52 (59.74)	1442.05 (55.79)	515.00 (23.54)	-	159.13 (7.72)	2191.75 (100.00)
Uttarkashi	6954.79 (97.91)	6954.79 (97.91)	147.89 (2.09)	-	-	7102.63 (100.00)
U.P.Hills	23652.33 (59.10)	23505.63 (53.54)	3013.53 (23.40)	2368.00 (5.92)	197.72 (0.53)	34242.13 (100.00)

Source : Forest Statistics of Uttar Pradesh, 1988-89, A Publication of the Forest Department of Uttar Pradesh.

Note : Figures in brackets are percentages to total area under forests.

There are eight districts of the state which comprise the hill region. The forests of the state are mainly confined to this region and to the bordering Terai belt. The area-wise

distribution of forests in the hill region are given in Table III.2. The forests are classified as:

- (a) Reserve Forests - these are forests which are under the control of the forest department
- (b) Civil and Soyam Forests - these are forests which are the control of the District Magistrate.
- (c) Panchayat Forests - these are forests which are under the control of the village panchayats.

These three categories are the main types of forests. Besides these there are also a few forests which are either privately owned, under the municipalities or in the cantonment. But their share is very small in the total forests of a district and therefore in the state as a whole as well.

In the hill region of the state around 69 per cent of the total forest area is under the direct control of the forest department of the state. Most of these are reserved forests. Less than one-fourth (23.40) are civil/soyam forests which are under the control of the District Magistrate. Less than 7 per cent are Panchayat forests while the remaining (0.59) forests are those which fall in other categories. Among the districts themselves there are wide variations. Coming to the forests under the forest department we find that in Uttarkashi almost the entire forest reserves of the district (97.91 per cent) are reserve forests under the control of the forest department. The percentage is again very high in the case of Nainital (99.59 per

cent). In Chamoli, Tehri Garhwal and Dehra Dun the percentage area of forests under control of the forest department are close to the average of the hill region. Almora, Pithoragarh and Pauri Garhwal are the three districts which have a relatively much lower share of forests under the control of the forest department with Almora being at the bottom (37.54 per cent). These are the three districts which have a much larger share of the civil/soyam forests. Almora heads the list with 46.44 per cent followed by Garhwal (40.13 per cent). Although Panchayat forests constitute only around 7 per cent of the total forests in the hill region as a whole, the share of Panchayat forests is the highest in the case of Pithoragarh (21.63 per cent). It is quite high in Almora as well (16.01 per cent). Tehri Garhwal, Dehradun and Uttarkashi do not have any Panchayat forests. Among the forests of the fourth category only Dehradun has around 7.72 per cent forests and that has been responsible for inflating the average of the hill region as a whole since only Nainital has a figure (0.54 per cent) close to the average of the region as a whole. The remaining districts either do not have any forests falling in this classification or the share is negligible. Taking the total forest area we find that maximum forest area is found in Uttarkashi (7102.3 Sq.km.) while Dehra Dun is the district having the least area under forests among the hill districts of the state.

The total geographical area of the hill region is 51125 sq. kms. whereas the area under forests is 34242.18 sq. kms. Thus in the hill region around 67 per cent of the total area is under forests. In the case of Pithoragarh, which is the district

selected for the study, the percentage area under forests to total geographical area is around 37.3 per cent only. However, per capita forests in the case of the hill region and Pithoragarh district is very nearly the same with Pithoragarh having only a marginally lower figure (Table III.3). The eight districts of the hill region together account for around 66.49 per cent of the total forest area of the state as a whole.

Table III.3 : Geographical Area, Forest Area, Percentage of Area Under Forests and Per Capita Forests in U.P. Hill Region and Pithoragarh (1987-88)

District/ Region/ State	Geogra- phical Area (Sq.Km.)	Area Under Forests (Sq.Km.)	% of Forest Area to Geog.Area	Approx. Popula- tion 1987 ('000)	Per Capita Forest Area(ha.)
Pithoragarh	3356	3302.82	37.30	587	0.563
Hill Region	51125	34242.13	66.98	5303	0.590
Uttar Pradesh	294411	51501.53	17.49	132315	0.039

Source : Forest Statistics of U.P. (1988-89), A Publication of the Forest Department of Uttar Pradesh.

It has already been indicated earlier that the forest wealth of the country as well as of the state has been depleted over the years. Table III.4 gives some idea regarding the extent to which the forest reserves have been depleted over the years. It is quite evident from the table that large scale deforestation took place between 1951-52 and 1973-74 so as to meet the developmental needs of the state. Thus forests were cut down for the purpose of constructing dams, to reclaim land for agriculture, to set up

Table III.4 : Deforested Area

(in Hectare)

Period	Purpose of Deforestation					Total
	River Valley Project	Agriculture	Construction of Roads	Establishment of industries	Other Works	
1951-57 to 1973-74	93241	79378	3478	19362	19913	215872
1974-75 to 1978-79	9046	4192	1333	4063	10247	23331
1979-80	-	-	160	-	123	233
1980-81	-	-	-	-	-	-
1981-82	-	-	7.72	-	4.56	12.23
1982-83	-	-	100.33	0.41	62.26	162.55
1983-84	-	-	173.03	2.17	43.35	218.55
1984-85	-	0.22	66.16	4.17	157.46	228.01
1985-86	-	-	57.02	-	3.01	60.03
1986-87	1206.44	16.62	197.92	19.35	36.91	1527.64
1987-88	393.75	-	54.13	-	50.83	503.75
1988-89	4.73	1.25	22.25	-	274.53	302.31
Total	103396.97	84033.09	5650.16	23451.60	30965.81	249052.63

Source : Forest Statistics, U.P. (1939-90)

industries and for the construction of roads. Nearly 2.16 lakh hectares of forests were thus cut down. After 1979-80, however, the forest wealth has not been depleted in the same proportion and great care has been taken to give permission only in very urgent cases. This has been in keeping with the forest conservation act.

The need to restore the depleted forest wealth had all along been recognised. In keeping with this objective various programmes of afforestation were also carried out. The details are being provided in Table III.5. Between 1985-88 a total area of 2.24 lakh hectares was brought under the afforestation

Table III.5 : Details of Area-wise Afforestation in U.P. (1979-88)

(Area in hectares)

Geographical Area	1979-80	6th Five Year Plan (1980-85)	7th Five Year Plan (1985-90)
Hills	66175(10.00)	26439(10.00)	22396(10.00)
Tarai & Bhawar	291173(44.00)	113974(45.00)	100795(45.00)
Indo-Gangetic Plain	138959(21.00)	52377(20.00)	44794(20.00)
Vindhayyan	165439(25.00)	66096(25.00)	55992(25.00)
Total	661756(100.00)	264336(100.00)	223963(100.00)

Source : Forest Statistics, U.P.

programme. Of this around 10 per cent was taken up in the hill region, 45 per cent in the Tarai and Bhawar area and 20 per cent in the Indo-Gangetic plain. The balance was taken up in the Vindhayyan region. The same pattern was true during 1979-80 and between the years 1980-85. It is, therefore, quite evident that the forest department has been making earnest efforts at trying to restore the depleted wealth of the forests so that the economic and environmental functions of the forests can be carried on a sustained basis.

It is quite obvious that to maintain the forests the state incurs various expenses and at the same time the forests are also an important source of revenue to the state. Table III.6 provides an idea of the extent of revenue earned and expenditures made in

Table III.6 : Details of Revenue Received from Forests and Expenditure on Forests in U.P.

(in lakh Rupees)

Item	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38	1938-39
Revenue Received	5314.20	5522.24	6034.99	5633.39	7370.44	7332.23	7657.23
Expenditure	4248.00	4906.35	5232.11	6034.63	7093.06	8132.25	9362.58
Saving	1566.20	615.39	792.88	-406.29	777.38	-799.97	-1705.35

Source : Forest Statistics, U.P. (1939-90)

this connection. It is evident from the table that upto 1934-35 the revenue received was in excess of the expenditure thus a net saving was being made by the forest department. The savings were again positive during 1936-37 after a break of one year. but during 1937-38 and 1938-39 the expenditures have been in excess of the revenue. In fact during 1938-39 the excess expenditure was to the tune of Rs.1705.35 lakhs. Between 1932-33 and 1938-39 revenue increased by only 31.70 per cent whereas expenditures increased by 120.40 per cent. This goes to show the extent to which care is being taken on the aspect of forest conservation. It is in the national interest that the forests be preserved and if we look at

the expenditure in this light we may feel that this is really an investment being made to ensure a better future not only for the state but the nation as a whole from the point of view of environmental conservation. So much of the forest wealth has been lost already that these expenses become mandatory, if the balance is to be restored without further delay.

Forests earn their revenue through the sale of various products. These include timber, fuelwood, wood for railway sleepers, and various industries. The total value of main forest products on an year-wise basis is given in Table III.7. The table shows that there is a gradual increasing trend in the revenue both from the sale of timber and fuelwood. The main source of revenue

Table III.7 : Total Value of Main Forest Product

(in lakh Rupees)

Item	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
Timber Wood	4211.04	4035.63	4427.04	5071.91	5432.02	5953.42
Fuelwood	191.66	183.55	332.66	411.81	452.00	490.35
Total	4402.70	4219.53	4809.70	5483.72	5884.02	6443.77

Source : Forest Statistics, U.P.

is of course timber. Between 1982-83 and 1987-88 the revenue earned through sale of timber went up from Rs.4211.04 lakhs to Rs.5953.42 lakhs which works out to an increase of 41.33 per cent. Fuelwood constituted only 4.47 per cent of the total revenue

earned during 1932-33. By 1937-38 the share of fuelwood had gone up to 77.61 per cent in total revenue. If we look at the revenue from fuelwood individually the amount between 1932-33 and 1937-38 had gone up by over 155 per cent.

When we look at timber supplied to various industries, the important industries are match box industry, plywood, sports goods, pencil, packing case and agricultural implements manufacturing industries. They are allotted specified number of trees by the forest department and this information is given in Table III.3. During the year 1932-33 a total of 6983 trees were allotted to these industries among which the most important were plywood and packing cases. Their share in the total allotment was 33.13 and 29.62 per cent respectively. Over the years more and more trees have been allotted to these industries and by 1937-38 the number stood at 13933 trees. However, the maximum share was that of the match box industry. In fact, when we look at the figures of the other industries they have been showing a declining trend. There are, of course, fluctuations on a year to year basis within each industry group.

Railways too used to be a very important consumer of timber wood. There was a time when all railway sleepers were made of wood. Recently, however, sleepers are also being made of cast iron and so the total dependence on timber has declined and this is quite evident from Table III.3. In 1932-33 for instance 11412 cubic metres was consumed by the railways but the consumption during 1937-38 was only 1634 cubic metres. Initially chir was used along with sal. However, the use of chir has not been made

since 1935-36 and now only sal is being used. There have been fluctuations in the use of sal between 1932-33 and 1936-37 but in 1937-38 the figure has gone down quite considerably (Table III.8).

Table III.3 : Timber Requirements of Various Industries met by the Forest Department

(No. of Trees Allotted)

Industry	1932-33	1933-34	1934-35	1935-36	1936-37	1937-38
Match wood	1119	500	3995	3706	3215	11430
Plywood	2663	2562	1395	2262	1871	839
Sports goods	1077	1357	513	1749	1196	377
Pencil	56	33	33	35	12	24
Packing Case	2063	1239	1374	995	2206	461
Agr. Implements	-	-	347	-	329	252
Total	5933	5691	8157	8747	9329	13833
<u>Railway Sleepers</u> (Volume in Cu.Mtrs)						
(a) Sal	4127	5647	4252	6056	5277	1634
(b) Chir	7285	796	396	-	-	-
Total	11412	6443	4648	6056	5277	1634

Source : Forest Statistics of U.P.

One of the basic requirements of the village population, besides fuelwood, as far as use of forest is concerned is grazing. The forest department has to keep this vital requirement in mind and has, therefore, to keep some forests open for grazing all the

year round while on some area grazing is partially allowed. The forest department also earns some money by allowing the villagers to make use of this facility. Between 1932-33 and 1937-33 the forest area over which people were allowed to let their cattle graze has gone down. There were, however, years when the area was higher as compared to 1932-33. Similarly earnings have also decreased. Maximum earnings were during 1933-34 and 1935-35 when grazing too was carried out on a much larger area (Table III.9).

Table III.9 : Area of Open Forests for Grazing and Revenue Earned From Grazing

Area	1932- 33	1933- 34	1934- 35	1935- 36	1936- 37	1937- 33
Forest Area under Forest Department ('000 ha.)	4063	4063	4069	4076	4076	4092
Forest Area Open for Grazing all the Year ('000 ha.)	2380	3159	2792	3209	3053	2350
Forest Area open for Grazing During Specified Time ('000 ha.)	52	57	58	56	57	36
Overall Area for Grazing ('000 ha)	2932	3216	2350	3265	3110	2446
Income Earned From Grazing (Rs.'000)	373	778	487	782	375	316

Source : Forest Statistics of U.P.

As has been indicated elsewhere, there are some rights and concessions which people have been granted in the forests. Thus there are forest products which the village community gets either free or on concessional rates. Table III.10 provides an insight.

Table III.10 : Value of Forest Produce provided Free or on Concessional Rates as a Result of People's Rights and Concessions

(in '000 Rs.)

Forest Products	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88
Timber Wood	23035	35235	43755	48177	54562	49327
Fuel	9322	8703	2966	5597	3715	5164
Bamboo & Resin	139	138	120	125	130	127
Grass & Grazing	2767	3109	3330	4218	4625	4138
Others	145	61	263	709	1341	1550
Total	40403	47252	50984	58326	64373	60306

Source : Forest Statistics of U.P.

into the value of forest produce which is provided either free or on concessional rates. The maximum value in this connection is of timber wood. It alone accounted for 69.38 per cent of the total in 1982-83 and 31.94 per cent during 1987-88. The next most important was fuelwood but its share has declined considerably from 23.07 per cent in 1982-83 to around 8.49 per cent by 1987-88. The other activity of importance is grazing whose share has remained constant at around 6.8 per cent at the two points of time. On the whole it can be clearly seen that the village community has been getting greater benefits over time as the figures have an increasing trend with the exception of 1987-88 when the figure went down relatively as compared to the previous year. This, therefore, gives some indication towards the fact that the rights and privileges of the village population is not

being neglected and they have duly been getting these commodities either free or at concessional rates. We have, however, to realise that as population has been going up the demands have been going up and so the pressure on forest products has been an ever increasing one.

This in brief gives an account of the forest resources of Uttar Pradesh. The data used so far is data provided by the forest department. This brings out the fact that over the years an attempt has been made to bring a greater area under forests so as to compensate for the loss of forest wealth that had taken place. Efforts have been made to manage the forest wealth in such a way so as to meet the requirements of the local people as well as of the various industries dependent on forests. Simultaneously various schemes of afforestation have also been undertaken so that the regeneration aspect is given due importance. Forest revenues have gone up over the years but expenditure has gone up still faster since there are various rights and privileges granted to the village population under which they are to be given forest products free or at concessional rates and also because heavy investments have to be made on maintaining the staff and on the on-going programmes.

Besides the major forest produce which is timber and fuelwood there are a number of minor forest products as well such as bamboo, ringal, katha, resin, thatching grass, gum, honey and wax, hides and horns, cane, tendu leaves, medicinal herbs, fodder grass and other grasses, boulder, bazri and stones, etc. and lime and

lime stone. These too have their own significance since a number of people are dependent on them for their livelihood. During 1936-37 the value of total minor forest produce was Rs.20.11 crores. We have, however, dealt only with the major forest produce.

A good deal of controversy has waged around the question of the extent of forest cover on the basis that the area under forest cover as estimated and reported in the official statistics and those assessed on the basis of satellite imagery vary quite considerably. The estimates brought out by satellite imagery report a much smaller area under forests. This discrepancy is primarily on account of the fact that the land sat imagery data give the figures of actual forest coverage. As against this the official statistics are based on data of the revenue department which classifies forests on an administrative basis. It covers all area classified as forest area irrespective of actual forest coverage. Thus if we go strictly from the ecological point of view it is the land sat imagery data which should be considered relevant. The official data, on the other hand, would indicate the forest potential which exists in the state and so every effort should be made to increase forest cover on this area and the utmost care should be taken to ensure that this land is not put to any other use. The Forest Conservation Act should go a long way in ensuring that the significance of forests remains of utmost importance on all forest lands and that only forests will be developed over areas which are under the forest department but which presently do not have forest cover.

The Forest Survey of India has made an effort to reconcile the conflicting estimates regarding actual forest area and has come up with its own estimates which are in between the official estimates and those calculated through land sat imagery. Table III.11 deals with them.

Table III.11 : Estimates of Forest Cover in U.P. (1981-83)

(Area in Sq. km.)

Type of Forest	Area
Geographical Area	294411
Official Forest Area	51269
% of Official Area to Geographical Area	17.4
Forest Area Assessed by NRSA	27730
% of NRSA Area to Geographical Area	9.4
Final Forest Area Assessed by F.S.I.	31443
% of FSI Area to Geographical Area	10.7
<u>Break-up of F.S.I. Area:</u>	
(a) Dense Forests	18376
(b) Open Forests	12567
F.S.I. Area as a Percentage of the Official Forest Area	51.3

Source : The State of Forest Report (1987), Government of India, Ministry of Environment and Forests, Forest Survey of India, Dehra Dun.

It is quite obvious from the above figures that there was a considerable discrepancy between the official estimates according

to which 17.4 per cent of the geographical area of the state was under forests and the estimates of the National Remote Sensing Agency (NRSA), whose estimates of the forest area was only 9.4 per cent. After carefully studying the landsat imagery maps the Forest Survey of India (FSI) came up with a final assessment and declared that the actual area under forests in the state was 31443 sq. kms. and this was 10.7 per cent of the state's geographical area. This is only 60.3 per cent of the area as estimated by official sources. The FSI further pointed out that out of the 31443 sq. kms. of forests around 60 per cent were under dense forests with a crown density in excess of 40 per cent while the rest were open forests having a crown density ranging between 10-40 per cent. The forest survey of India further indicated that the total forests fell in the following types of forests.

(a) Tropical Moist Deciduous	:	7048 Sq. Km. (22.42%)
(b) Tropical Dry Deciduous	:	8715 Sq. Km. (27.72%)
(c) Tropical Thorn	:	201 Sq. Km. (0.64%)
(d) Sub-Tropical Pine	:	8455 Sq. Km. (26.89%)
(e) Himalayan Moist Temperate	:	6397 Sq. Km. (20.34%)
(f) Sub-Alpine and Alpine	:	627 Sq. Km. (1.39%)
Total		31443 Sq. Km. (100.00%)

Thus the most important category was tropical dry deciduous forests followed by sub-tropical pine. The others of significance were tropical moist deciduous and Himalayan moist temperate. The remaining categories namely sub-alpine and alpine, and tropical thorn had a negligible share in the total forest area of the state.

Besides making a classification of forests according to forest type the F.S.I. also distributed the forest area in accordance with the altitude at which they are situated in the state. Accordingly 16435 sq. kms. of forest area which is over half the total forest area (52.2 per cent) are distributed over an altitude of upto 600 metres. One-third of them (10481 sq. kms.) are found on altitudes ranging from 600 to 1800 metres while the rest (4527 sq. kms.) are distributed above an altitude of over 1800 metres.

What is quite obvious from these figures is the fact that the area under forests in Uttar Pradesh fall much below the prescribed minimum area under forests. It may be recalled that the National Forest Policy of 1952 had recommended that one-third of the geographical area should be under forests. Not only is the cover inadequate, it is distributed rather unevenly over space. The N.R.S.A. maps clearly bring out the fact that between 1930-32 there were only three districts of the state in which the area under forests was 30 per cent or more. There were another 12 districts where the forest area was between 5 to 30 per cent and in as many as 33 districts the area under forests was negligible.

In Uttar Pradesh the forests are mainly confined to the hill region, the Tarai belt along the Himalayas, Bundelkhand and Mirzapur. The hill region alone accounts for around two-thirds of the total forest area of the state. Here too the forest cover is spread over only 27.8 per cent of the total area as against the

recommended area of 60 per cent. In fact this area falls short of even the overall norm of 33.33 per cent for the state as a whole.

Looking at the trends in forest area of the state between 1931-33 and 1935-37 it was observed that as against a total forest area of 31443 sq. kms. during 1931-33, the forest area had gone up to 33314 sq. kms. by 1935-37 and so during 1935-37 forest area was 11.5 per cent of the total geographical area. The area under close forests had risen from 19376 to 22632 sq. kms. while that under open forests had declined from 12567 to 11212 sq. kms. This shows that total area under forests has increased through the efforts of the forest department by around 7.64 per cent. Moreover, the declining figure of open forests and a corresponding increase in the area under close forests also reflects on the efforts of the department to preserve and regenerate forests. This, therefore, seems to be step in the right direction. The task of increasing the forest area is not an easy one since it calls for fairly heavy investments, the new trees planted need care and also that it takes a long time for the trees to grow up. Therefore, the forest department will have to keep up this spirit if greater area is to be brought under forests. At the same time people too have to realise that the forests are of crucial importance to them and that their survival both from economic and environmental point of view depends solely on the survival of the forests. They have, therefore, to extend their fullest co-operation to the forest department in the effective management of the forests.

CHAPTER IV

Analysis of the Existing Situation in the Hill Region

To examine the pattern of fuelwood consumption among the rural households in the hill region, requirement of timber for the purposes of building and other domestic uses, practices prevailing among the households in the collection of wood and grazing cattle, problems related to wood collection and procurement of other forest products, the rural households were surveyed and the findings of the detailed investigation made in this context are included in the study. For this purpose, two villages in district Pithoragarh were chosen for household survey. Generally, fuelwood consumption and requirement of other timber, demand for other forest products and the practices of procurement are governed by the availability of forest products and the distance of forest area from the villages to a great extent. Similarly, type of forest and its management also have their impact on the fuelwood consumption as well as method of procurement. The selection of villages was made such that one village was selected close to forests and the another village which is situated at some distance from the forest. Accordingly, two villages namely Neera and Gatgal in district Pithoragarh were selected for survey. The fuelwood is collected and procurement of forest products are made by the households of village Neera from the reserve forest managed by the

forest department and in the case of village Satgal, the households are dependent for their requirement of forest products on the forest managed by the Panchayat. The information and relevant data were collected from the households of the selected villages through a structured questionnaire.

Our structured questionnaire obtained data related to households in terms of family size, land holding, animal husbandry, pattern of fuelwood consumption and its procurement, problems related to collection of wood and other forest products. The total number of households which have been surveyed was 59 from both the villages. The sample of households was 29 in the village Neera from where the distance of forest area was 10 Kms. and the other village Satgal having a sample of 30 households has forest area at a distance of 3 Kms. In the individual sample villages, it was found that 86.21 per cent households headed by male members in village Neera. However, all the households in village Satgal were headed by male members.

Data pertaining to age profile of the heads of sample households revealed that majority (67.80 per cent) of the households were headed by persons in the age group of 41-50 years. The second major age-group of heads of households was 31-40 years and constituted 25.43 per cent of the total sample (Table IV.1). About 5 per cent of the heads were above 60 years. The age profile of the heads of households was found by and large similar in both the sample villages. Taking all the sample households together, the average age of the heads was recorded 46.95 years

(Table IV.1) with a small variation between the sample villages.

Table IV.1 : Age Profile of the Heads of Sample Households

Village	Age Profile (in years)						Av. Age
	Upto 20	21-30	31-40	41-50	51 & Above	Total	
Neera	-	1 (3.45)	7 (24.14)	20 (63.95)	1 (3.45)	29 (100.00)	45.35
Satgal	-	-	8 (26.55)	20 (66.67)	2 (6.67)	30 (100.00)	47.54
Total	-	1 (1.59)	15 (25.43)	40 (67.90)	3 (5.03)	59 (100.00)	46.95

The analysis of data regarding the educational level among the heads of the households indicated that 3.47 per cent heads were illiterate and about one-third of the heads were educated upto Junior High School (Table IV.2). Those who were Intermediate and above constituted 5.03 per cent in the total sample of heads. The educational standard of 23.82 per cent of the heads was High School whereas 20.34 per cent heads have received education upto Primary level (Table IV.2). In the individual sample villages, the proportion of illiterates was found marginally higher in village Satgal as compared to village Neera. The educational level of heads was found higher among heads in village Satgal where the proportion of heads was recorded higher having higher education.

Table IV.2 : Educational Level Among the Heads of Sample Households

Educational Level	Neera	Satgal	Total
Illiterate	2 (6.90)	3 (10.00)	5 (9.47)
Literate	-	2 (6.66)	2 (3.39)
Primary	4 (13.79)	3 (26.66)	12 (20.34)
Junior High School	10 (34.48)	10 (33.33)	20 (33.90)
High School	11 (37.93)	6 (20.00)	17 (28.32)
Intermediate & Above	2 (6.90)	1 (3.33)	3 (5.03)
Total	29 (100.0)	30 (100.0)	59 (100.0)

The families of the 59 sample households had a total population of 391 persons; the average size of family being 6.63 in aggregate, 5.83 in village Neera and 7.4 in village Satgal. Data pertaining to size of land holdings indicated that the total area under agricultural crops was 52.55 acres with the total sample of 59 households, registering the average size of land holding 0.89 acres. There has been variation in the average size of land holding in the sample villages. The average size of land holding was recorded 0.34 acres in village Neera as against 0.94 acres in village Satgal. Among the total households in the sample was 5.08 per cent households were found landless (Table IV.3). The classification of sample households according to different sizes of land holdings indicated that 10.17 per cent households had less than 0.50 acre each and the proportion of households constituted 47.46 per cent who had land holdings between 0.50 to

1.0 acre each (Table IV.3). The households constituted 37.23 per cent in the total sample who have their land holdings between 1.01 to 1.50 acres. A significant variation has been observed in the proportions of households falling into the different categories of land holdings in the individual sample villages.

Table IV.3 : Distribution of Sample Households According to Size of Land Holdings (Acres)

Land Holdings & Their Sizes	Neera	Satgal	Total
Landless	2 (6.20)	1 (3.33)	3 (5.03)
Less than 0.50	4 (13.80)	2 (6.66)	6 (10.17)
0.51 - 1.00	15 (51.72)	13 (43.34)	28 (47.46)
1.01 - 1.50	8 (27.53)	14 (46.67)	22 (37.23)
Total	29 (100.0)	30 (100.0)	59 (100.0)
Average Size of Land holdings (Acres)	0.84	0.94	0.89

The main agricultural crop grown by the households in the sample villages are Paddy, Maize, Mandua, Soyabean and Urd during the kharif season and wheat, barley and masoor in the rabi season. There is no variation in the agricultural crops and their rotation between the two sample villages. Data regarding the pattern of animal husbandry among the sample households indicated that the households generally keep bullocks, cows, buffaloes, youngstock and goats. On an average, per household number of cattle heads are found 5.42 in aggregate (Table IV.4). This figure was 4.03 in village Neera and 6.76 in Satgal. There has been differentiation

between the two sample villages as far as goat rearing is concerned. The practice of goat rearing is absent in village Neera. It is perhaps due to non-availability of forests near the village as goat rearing needs forest area for grazing purposes. Here, it would be meaningful to mention that the forest area is about 10 Kms. from village Neera. On the other hand the households of village Satgal keep goats with other animals because the forest area is easily available near the village. The data regarding the pattern of animal husbandry highlights the fact that the households keep less number of cattle head with them in the villages which are located far from the forest area. The milch animals constituted a larger proportion than other animals.

Table IV.4 : Cattle and Animal Population in the Sample Households

No. of Cattle and Animal Heads	Neera	Satgal	Total
Cow/ Buffaloes	57	75	132
Bullock	36	51	87
Young Stock	24	26	50
Goat	-	51	51
Per HH No. of Cattle Heads	4.03	6.76	5.42

The heads of households were engaged in different occupations. Data on the occupational pattern among the heads of households indicated that the primary occupation of 52.54 per cent heads was agriculture (Table IV.5). The second major proportion

of heads whose primary occupation was service constituted 30.52 per cent in the total sample. The primary occupation of 3.39 per cent heads was transport and trade. Wage labour was the primary occupation for 5.77 per cent heads in the sample. Carpentry and tailoring have been the primary occupations of 3.33 per cent heads. A notable variation has been observed in the proportion of heads whose primary occupation was agriculture and services between the two sample villages. In village Neera, agriculture was the primary occupation of 37.93 per cent households whereas the corresponding figure was 66.66 per cent in village Satgal.

Table IV.5 : Occupational Pattern Among the Heads of Households

Occupation	Neera	Satgal	Total
<u>Primary Occupation</u>			
Agriculture	11	20	31
Transport & Trade	1	1	2
Service	13	5	18
Business	1	1	2
Wage Labour	2	2	4
Carpentry & Tailoring	1	1	2
<u>Secondary Occupation</u>			
Wage Labour	-	2	2
Business	7	3	10
Agriculture	13	9	22

(Table IV.5). Similarly, service has been the primary occupation of 44.32 per cent heads in village Neera while this figure was recorded 16.66 per cent in village Satgal. Secondary occupation was reported by 57.63 per cent of the total heads in the sample with a marked variation in the individual sample villages. Occupations like, agriculture, wage labour and business were the main among the heads who reported their secondary occupations.

The analysis of data regarding the level of household income in the sample villages revealed that per household average annual income was around Rs.18713 from all the sources. In the individual sample villages, the average annual household income was higher Rs.19320 in village Satgal than the per household annual income Rs.17579 in village Neera (Table IV.6). However, the per capita annual income of the sample households is recorded higher (Rs.3016) in village Neera as compared to the per capita income (Rs.2678) in village Satgal. This is perhaps because the average size of family was larger among the households in village Satgal (7.40) than among the households of village Neera (5.23). Data pertaining to sourcewise income indicated that the income generated from primary occupations contributed more than 54 per cent in the total household income of the sample villages. The share of income earned from secondary occupations has been found 27.18 per cent in the total household income and about 13 per cent income is generated by other sources (Table IV.6). The variation has been observed between the two sample villages as far as the share of incomes earned from primary and secondary occupations is concerned. In village Neera, primary occupation contributed 64.06

per cent in the total household income whereas this figure is recorded 16.78 per cent in village Satgal. Similarly, 18.70 per cent share of household income is earned from secondary occupations in village Neera while the corresponding figure for village Satgal was 34.16 per cent. The other sources contributed by and large equal proportion to the total household income.

Table IV.6 : Level of Annual Income Among the Sample Households
(Income in Rs.)

Sources of Household Annual Income	Neera	Satgal	Total
Primary Occupation	325650(64.06)	273200(46.73)	604850(54.77)
Secondary Sources	95300(18.70)	204900(34.46)	300200(27.13)
Other Sources	37850(17.24)	111500(18.76)	199350(18.05)
Total Annual Income	509200(100.0)	594600(100.0)	1104400(100.0)
Per Household Annual Income	17579	19820	18718

When data of household income in sample villages are analysed according to different brackets of income levels, it was found that 3.39 per cent of households had an annual income below Rs.5000 and 13.56 per cent households were recorded in the income bracket of Rs.5001 to Rs.10,000. More than 75 per cent of the households in the sample villages were in the income group of Rs.10,001 - Rs.30,000 (Table IV.7). The households who had their annual income in excess of Rs.30,000 constituted 6.73 per cent in the total sample. The households of individual villages exhibited marginal variations in this regard.

Table IV.7 : Distribution of Sample Households According to Different Size of Annual Income

Size Group of Income (Rs.)	Neera	Satgal	Total
No. of Sample Households	29	30	59
Below 5000	2	-	2
5001 - 10000	3	5	8
10001 - 20000	10	13	23
20001 - 30000	12	10	22
Above 30000	2	2	4
Per Household Average Annual Income (Rs.)	17579	19320	18718

Generally, the households in the sample villages use fuelwood for cooking purposes. Dung cakes are not used in the study area for cooking purpose. The firewood is collected from the fallen trees or from the twigs of the trees. There is no specific trend among the households as far as the pattern of firewood collection is concerned. Kerosene is also used for cooking purposes (not usual) by some of the households in the sample villages as reported by 28.81 per cent households. About 10 per cent of the total households reported that L.P.G. is also used for cooking purposes. Kerosene and L.P.G. are not always used by the households. There have been variations in the type of fuel used for cooking purposes among the households in the individual sample villages. Kerosene is used as cooking fuel by 37.93 per cent households in village Neera as against 20.00 per cent households in village Satgal. L.P.G. is used as cooking fuel by the

households only in village Neera and that is used by 29.70 per cent of the households. It is observed that kerosene and L.P.G. are used only when the fuelwood is not readily available or when cooked food is immediately required by the households.

In the hill region fuelwood is normally collected from the forest areas by the households of the rural areas. However, in some cases, firewood is also collected from the orchards and trees in the agricultural lands but the quantity of fuel wood collected from these sources is not significant. The pattern of fuelwood collection among rural households generally depends on the availability of fuel, distance of forest area, family composition, prevailing collection practices in the village, availability of time and climate of the area. However, distance of forest from the village and availability of fuelwood are the major factors which govern the pattern of fuelwood collection. The analysis of data in this context indicated that there is no specific pattern or period of fuelwood collection. The firewood is collected by the sample households weekly, monthly and once in a year depending on the choice and availability of time with the households.

Taking all the sample households together, it is found that 20.34 per cent households collect fuelwood once in a week and collection of fuelwood is made monthly by 38.98 per cent households. However, there are households who generally collect fuelwood during one period of time every year and their proportion is 40.68 per cent in the total sample (Table IV.8). In the individual sample villages, a significant variation is observed in

the proportion of households with respect to the pattern of fuelwood collection. In village Neera, from where the forest is about 10 Kms. majority of the households collect fuelwood once in a year and their proportion is found 53.95 per cent and in village Satgal, the proportion of such households is only 13.33 per cent (Table IV.8). Months like November and December are the ideal for

Table IV.8 : Pattern of Fuelwood Collection Among the Households in Sample Villages

Practices of Fuelwood Collection	Neera	Satgal	Total
Daily	-	-	-
Weekly	2	10	12
Monthly	7	16	23
One time in a Year	20	4	24
Main months of fuelwood collection those who collect once a year	Nov.-Dec.	Nov.-Dec.	Nov.-Dec.

collection of fuelwood in the hill region because these months are slack period from the point of view of agricultural work and at the same time the hired laboures are easily available for this purpose. The one time collecting households generally store their fuel requirement for the whole year during these months. More than 53 per cent households in the village Satgal reported that they collect fuelwood in each month. The proportion of households is recorded 33.33 per cent in village Satgal who collect fuelwood weekly. As against this we observe that in village Neera the

proportion of households engaged in weakly or monthly collection of fuelwood is much lower (Table IV.3).

In the hill region, fuelwood is used for cooking purpose in the rural areas and the fuelwood is mostly obtained from the forests. As a result of depletion of forests the households have to cover a long distance for collecting the firewood. The analysis of survey data found that the users have to go upto the distance of 10 Kms. from their houses. About 40.68 per cent households reported that they have to travel 3 to 10 Kms. to collect fuelwood for one collection. The proportion of respondents is recorded 45.76 per cent who reported that they have to walk a distance of 2 to 4 kms. for the purpose of fuelwood collection (Table IV.9). Those households who have to cover 4 to 6 kms. for fuelwood collection constituted 10.17 per cent in the total sample. The households have to cover different distances in fuelwood collection in the sample villages. In village Satgal, none of the sample households have to cover more than 6 kms. but most of the households in village Neera have to go to a distance of 3 to 10 kms. and their proportion is recorded 32.75 per cent (Table IV.9). Taking all the sample households together it is recorded that, on an average, a user has to walk a distance of 5.24 kms. for each collection. A variation has also been found in the average distances between two villages which the users have to cover. In village Neera, one has to go about 7.37 kms. for the purpose of fuelwood collection whereas this distance was 3.16 kms. for the households of village Satgal (Table V.9).

Table IV.9 : Distance Covered in Fuelwood Collection at one time

Distance Covered in Fuelwood Collection	Neera	Satgal	Total
Below 2 Kms.	1 (3.45)	1 (3.34)	2 (3.39)
2 - 4 Kms.	1 (3.45)	25 (36.65)	27 (45.75)
4 - 6 kms.	3 (10.35)	3 (10.00)	6 (10.17)
6 - 8 kms.	-	-	-
8 - 10 Kms.	24 (32.75)	-	24 (40.63)
Average distance covered in fuelwood collection at one time (kms.)	7.37	3.16	5.24

As a result of the indiscriminate felling of trees and pressure on forests for other purposes, the forests have gradually disappeared in the hill region. Consequently, the fuelwood is not easily available around the villages. The users have to travel a long distance for collection of fuelwood which requires a considerable time. Data collected in this regard indicated that on an average one time collection of cooking fuel requires about 5.03 hours (Table IV.10). The average time taken in fuelwood collection varied from one village to another depending on the distance of forests as well as availability of fuelwood. In village Neera, from where the forests are at a longer distance, each user has to spend about 7 hours for collection of fuel at one time. When the data on the distribution of households are analysed according to the time take in collection of cooking fuel, it is found that 30.51 per cent households have to spend 7 to 10

hours each time and 16.95 per cent households require 4 to 7 hours (Table IV.10). There are households who have to spend one to two hours for the purpose of fuelwood collection. The households constituted about 45.76 per cent who require 2 to 4 hours for per visit of fuelwood collection. Between the sample villages, the proportion of households who have to spend a considerable time in procuring fuelwood is relatively much higher in village Neera (Table IV.10). The analysis of data regarding the time taken in collection of cooking fuel reveals that a significant portion of time is consumed in fuelwood collection which is generally the headache of female population.

Table IV.10 : Time taken in Fuelwood Collection at One time

Time taken per visit	Neera	Satgal	Total
1 - 2 hours	1 (3.45)	3 (10.00)	4 (6.79)
2 - 4 hours	3 (10.34)	24 (30.00)	27 (45.76)
4 - 7 hours	7 (24.14)	3 (10.00)	10 (16.95)
7 - 10 hours	18 (62.07)	-	18 (30.51)
Average time taken in Fuelwood collection at one time (hrs.)	6.96	3.13	5.03

According to forest policy, the rural households which are listed in SCHEDULE-B have the right of timber from forests and they are entitled to get wood for the purposes of agriculture, building and furniture. The trees are also made available for the

purpose of building to the households on their request. The households in the sample villages were asked about the availability of timber for building purposes. Data in this regard revealed that about 39 per cent of the households had applied to the forest department for trees in connection of building purpose and among them only 59.56 per cent households have been provided trees (Table IV.11). Most of the households who have been provided trees reported that the quantity of wood was not

Table IV.11 : Availability of Timber for Building Purpose from Forest Department

Village	No. of Sample HH	No. of HH who ever applied for a tree	Whether the tree was provided to the households		Whether the qty. of timber was enough		Last Timber was allotted to the HH	
			Yes	No	Yes	No	5 yrs ago	More than 5 yrs. ago
Neara	29	11 (37.93)	6 (54.55)	5	2 (33.33)	4 (66.64)	3 (50.00)	3 (50.00)
Satgal	30	12 (40.00)	10 (33.33)	2	4 (40.00)	6 (60.00)	2 (20.00)	3 (30.00)
Total	59	23 (38.93)	16 (59.56)	7	6 (37.50)	10 (62.50)	5 (31.25)	11 (58.75)

sufficient to meet their requirements. In as many as 62.50 per cent of cases the households could not meet their requirement. In the different sample villages, a varied picture has been emerged as far as supply and availability of wood is concerned. In village Nera, 37.93 per cent of the sample households had ever applied

for tree whereas 40.00 per cent of the households had applied in village Satgal (Table IV.11). The proportion of households was significantly higher 33.33 per cent in village Satgal who have been provided trees among the applicants as compared to village Neera where 54.55 per cent households had been provided trees among the applicants. The wood provided from forests was sufficient to meet their requirements in 33.33 per cent cases in village Neera as against 40.00 per cent in village Satgal (Table IV.11). Among the households who have been allotted trees, 31.25 per cent had been provided trees 5 years ago and rest were those who had availed this facility more than 5 years ago.

Wood is required not only for cooking purposes by the rural households but it is also needed for the use of different purposes. Data were collected from the sample households regarding their requirements of wood for different purposes. All the households in the sample who have agricultural lands need timber for agricultural implements. About 94.91 per cent households in

Table IV.12 : Details of Timber Requirements by the Households

Village	Requirements of Timber by the HH for Different purposes					
	Agricultural Implements		Building Work		Furniture	
	Yes	No	Yes	No	Yes	No
Neera	27	2	23	1	23	1
Satgal	29	1	30	-	29	1
Total	56	3	53	1	52	2

the sample have their agricultural lands. For building purpose, 98.30 per cent households reported that they need timber. Similarly, 96.61 per cent households reported that they need timber for furniture purpose also (Table IV.12). There has been similarity among the sample villages regarding households requirement of timber for different purposes.

The study also tried to examine the changing pattern of fuel used for cooking by the households. The survey data indicated that there has been change in the pattern of fuel consumption for cooking purpose over a period of time in the rural households of the hill region. Twenty years ago the households were fully dependent on fuelwood for cooking whereas at present some of the households in the sample villages are also using kerosene and L.P.G. as reported by 20.34 per cent and 5.03 per cent households respectively (Table IV.13). However, three-fourths of the sample households are still dependent on fuelwood for cooking purpose. When we analyse the data about the changing pattern of cooking fuel consumption among the households of individual sample villages we find that there has been variations in the individual sample villages as far as changing pattern of cooking fuel is concerned. The proportion of households who have switched on commercial fuel from non-commercial fuel (firewood) was recorded higher in village Neera as compared to the households of village Satgal. Here, it will also be worthwhile to mention that the forests are located far from village Neera. At present 41.33 per cent households are using commercial fuel, such as kerosene and L.P.G. for cooking purpose in village Neera as

Table IV.13 : Changing Pattern of Consumption in Cooking Fuel

Village	Type of Fuel Used for Cooking Purposes			
	20 Years ago	At Present		
	Firewood	Firewood	Kerosene	L.P.G.
Neera	23	17	9	3
Satgal	30	27	3	-
Total	59	44	12	3

against 10.0 per cent households in village Satgal (Table IV.13). The analysis highlights that the rural households have changed their consumption pattern of cooking fuel and they are comparatively less dependent on fuelwood where the forests are not easily accessible.

The households in rural areas are dependent on forests for the purpose of various requirements. Not only the fuelwood is procured from the forests but the households also collect timber, slate, stone, grass and other forest products from forests. The timber wood is used for agricultural implements, building purposes and for furniture. Whereas all these things were collected by the households from forests earlier it is now widely observed that forests are not able to supply these items adequately. Due to depletion of trees and deforestation now the timber requirements of households are not fulfilled by the forests in most of the cases, the households have to purchase some portion of their timber requirement from markets. The households were asked about

the sources of procurement of timber used for different purposes. The analysis of data revealed that more than 30 per cent of the requirements for agricultural purposes are met from the market (Table IV.14). In the case of timber used for construction and building purposes, the households have reported that they

Table IV.14 : Source-wise Procurement of Timber Wood for Different Purposes

Village	No. of HH in the Sample	Sourcewise Procurement of Timber for Different Purposes					
		Agri. Implements		Building Purpose		Furniture	
		Forest	Market	Forest	Market	Forest	Market
Neera	29	56.66	43.34	76.65	23.34	-	100.00
Satgal	30	32.75	17.25	68.96	31.04	-	100.00
Total	59	69.49	30.51	72.63	27.12	-	100.00

purchased 27.12 per cent of their requirement from market. The timber used for furniture is totally purchased by the households. The timber procured from the forests is either not sufficient for that purpose or the quality of timber is not suitable for making furniture. In the individual sample villages, the timber provided by forests are sufficient for 56.66 per cent households in village Neera as far as agricultural implements are concerned, while in village Satgal 32.75 per cent households reported that their full requirement of timber for agricultural implements are met from forests (Table IV.14). Similarly, the proportion of households is higher in village Neera, whose total requirement of timber for

building purposes is met from the forests as compared to the households in village Satgal. In both the sample villages, the timber for furniture is purchased from the markets by the households.

The forests in hill region are mainly of three categories, viz. reserve forests, civil/soyam forests and panchayat forests. For most of the basic needs, the households in rural areas are dependant on forests and they procure some products from one category of forest and other products from other category. Data regarding the share of different categories of forests in the procurement of forest products by the households indicated that about 70 per cent of the total procurement of the households are met from panchayat forests (Table IV.15). The contribution of

Table IV.15 : Percentage Share of Different Categories of Forests in Households Procurement

Village	Percentage Share of Different Categories of Forests		
	Reserve Forest	Civil/Soyam Forests	Panchayat Forests
Neera	12.90	17.31	69.79
Satgal	16.67	15.00	70.33
Total	14.73	16.13	69.13

reserve forests is 14.73 per cent in the total procurement of forest products. The civil/soyam forests contribute 16.13 per cent in the household procurement. The households in individual sample villages have shown a small variation in the share of

different categories of forests in the household procurement of forest products (Table IV.15).

Though the households get various kinds of forest products from the forests. However, some of the households in the sample villages reported many problems associated with different categories of forests. As far as reserve forest is concerned, 54.24 per cent households pointed out that distance of reserve forests is very far from the villages, as a result it takes too much time in procuring the forest products of day-to-day use. Similarly, 32.20 per cent households claimed that the reserve forests are more restricted and it makes them difficult to procure the forest products (Table IV.17). Similarly the area under reserve forests from where their needs are met, has come down and it is not sufficient to meet the requirements of households as reported by 32.20 per cent respondents. The households in the sample villages also reported problems with the civil/soyam forests. The opening time of these categories of forests is for limited period as reported by 33.98 per cent households (Table IV.15). Some of the households were of the view that grass and fuelwood are not provided from this category of forests. About 27.12 per cent households have shown their problem regarding the unnecessary interference from government officials in these forests which ultimately create a lot of problem for the households. Regarding the panchayat forests, the households also pointed out certain problems. The right of villagers is comparatively less in procuring forest products from the panchayat forests. The proportion of households was recorded 12.37 per cent

who reported that right to collect forest products is very less as a result the households can not avail the facility from panchayat forests (Table IV.16). About 27 to 30 per cent households claimed that they are not provided grass and timber wood from panchayat forests.

Table IV.16 : Problems Associated With Different Categories of Forests as Viewed by Sample Households

Forests	Neera	Satgal	Total
<u>Reserve Forests</u>			
Long Distance from the Villages	68.95	40.00	54.24
Less Open	31.03	33.33	32.20
Area is not sufficient	37.93	25.66	32.20
<u>Civil/Soyam Forests</u>			
Opening Time is not Suitable	34.48	43.33	38.93
Grass and Fuelwood is not provided	34.48	33.33	33.90
Government Interference is high	31.03	23.33	27.12
<u>Panchayat Forests</u>			
Right to villagers is very less	44.83	40.00	42.37
Grass is not provided	24.14	30.00	27.12
Fuelwood and Timber are not available	31.03	30.00	30.52

The analysis further indicated that there are several practical problems which the households have to face in procuring fuelwood, timber wood and other forest products. The problems reported by the households in procuring different kinds of forest

products revealed that in the case of fuelwood the households have to travel a long distance for the collection of fuelwood as reported by 45.75 per cent households (Table IV.17). Similarly, 35.53 per cent households claimed that they are not allowed to collect fuelwood from the forests. Because the forest are at a long distance, the households have to spend a considerable portion of their time in the collection of fuelwood as reported by 37.23 per cent respondents. Not only the forests are at a long distance and the collection of fuelwood takes much time, but at the same time the supply of fuelwood is also not sufficient to meet their requirements in the case of 11.36 per cent households. The individual sample villages have shown a wide variations as far as the proportion of households claiming certain problems. In the past when the forest were thickly planted and rich, the timber for making agricultural implements was easily available in the forest. But now the households in the hill region are of the view that agricultural implements are not available from the forests as reported by 25.42 per cent households. Whatever portion of agricultural implements are available from the forests, these are not provided at the appropriate time to the households. About 35.53 per cent households reported that the process of getting timber from forests is not easy which makes unnecessary delay and encourages corruption. The timber provided by the forests is not suitable for making agricultural implements.

Generally, the households in the rural areas collect materials such as stone, limestone, slates and other necessary things from forests for constructing houses and buildings. The

Table IV.17 : problems Faced by Households in Procuring Fuelwood, Timber wood and Other Forest Products

Problems Faced by the Households in Procuring/Regarding	Neera	Satgal	Total
<u>Fuelwood</u>			
Long Distance	58.62	33.33	45.75
Not allowed for collecting Fuelwood	34.43	36.66	35.59
Collection of Fuelwood takes much time	55.17	20.00	37.20
Supply is not Sufficient	13.79	10.00	11.36
<u>Agricultural Implements</u>			
Required Quantity is not available	31.03	20.00	25.42
Timber wood is not available in time	27.59	36.66	32.30
Process of getting timber is not easy	41.38	30.00	35.59
Suitable Timber is not provided	27.59	40.00	33.91
<u>Material Related to Construction</u>			
Permission is not easily available	31.03	40.00	35.59
Unnecessary delay in approval	34.43	30.00	32.20
Quantity is not sufficient	17.21	16.66	16.95
Timely not available	17.21	20.00	18.64
<u>Grazing the Cattle</u>			
Grazing is not allowed	72.41	40.00	55.93
Charges are required for grazing	41.37	33.33	37.20
Lack of Pasture land	63.96	60.00	51.00

households in the sample villages reported problems in procuring these materials. About 35.59 per cent households reported that generally, permission from forest department is given to the households for procuring the material used for construction purposes. The unnecessary delay in getting permission disturbs the process and planning of house construction. The quantity which is approved by the forest authorities is normally not sufficient for the requirements of households. About 17.00 per cent households reported that the quantity of material provide by forests is not adequate and 18.64 per cent households claimed that whatever quantity is sanctioned is not available in time (Table IV.17). The problems associated with grazing of cattle are also pointed out by the households. More than half of the sample households reported that their cattle are not allowed to graze in the forest area. Similarly the field staff of the forest department demand money for grazing which the poorer households can not afford.

There are certain forest rights provided to the village people for utilizing the reserve forests as well as for collecting forest products under which the procurement of forest products are made by the households. Time to time changes have been made in the forest rights in accordance with the changes in forest policies made by government. The question arises as to whether the households are aware of these rights and to what extent they have knowledge of forest laws and rights. In this context, the respondents were asked about their knowledge of forest rights and

information was collected thereon. Data pertaining to the level of awareness about the right to collect forest resources among the households revealed that 38.13 per cent were aware of these rights (Table IV.13). In individual sample villages, awareness of forest rights was recorded 39.65 per cent among the households in village Nera as against 36.66 per cent in village Satgal. The households in hill region collect various things from the forests such as fuelwood, timber wood, grass, stone, slate, roots, herbs and other things for daily use. The government has made some rules and regulations and have given right to the villagers under which the collection of forest products by the users is governed. When data are analysed regarding the knowledge of peoples' right for collecting various things from forest among households it is found that 34.74 per cent households knew about their right regarding fuelwood collection and 33.05 per cent regarding timber woods collection (Table IV.13). Very few proportion of

Table IV.13 : Awareness of Peoples' Right Among the Sample Households Regarding the Reserved Forest

Village	No. of HH in the Sample	% of HH having knowledge of Forest Right	% of Respondents who were aware of the following Rights				
			Fuel-wood	Timber	Slate & Stone	Grazing	Other Forest Products
Nera	29	39.65	32.76	79.31	17.24	75.86	6.90
Satgal	30	36.66	36.66	36.66	13.33	33.33	3.33
Total	59	38.13	34.74	33.05	15.25	79.65	5.03

households (15.25 per cent) have knowledge of forest laws under which the right to collect stone and slate is governed. The awareness of grazing right is known to 79.66 per cent households (Table IV.19). There has been variation in the level of knowledge among the households about the forest right to collect various forest products from the forest in the individual sample villages. The proportion of households reporting the awareness of right to collect the forest product was recorded relatively higher in village Satgal as compared to village Neera.

The opinion of households was also asked about the present forest policy and the views given by the respondents were recorded in the questionnaires. The analysis of data in this context revealed that all the households in both the sample villages were not fully satisfied with the present forest policy due to one reason or the other. The households have suggested some changes in the forest policy. Some of the households suggested that the forest policy should be flexible according to situation and household's demands as viewed by 30.51 per cent households (Table IV.19). More rights should be given to the villagers in procuring forest products was one of the suggestions given by 27.12 per cent households. About 15 per cent households reported that the interference of forest staff in the forest policy needed to be minimised. The villagers have right to timber in which the quota of timber wood for each villages had been fixed by the forest department many years back, but due to increase in the population, the quantity of the timber given to the households as per rule of quota is now not sufficient to meet the requirements. It was the

Table IV.15 : Opinion of Households Regarding Present Forest Policy

Respondents Suggested the following Changes in the Forest Policy	Neera	Satgal	Total
Percentage of Respondents Reporting that the present Forest Policy is not Satisfactory	100.00	100.00	100.00
Forest policy should be Flexible	37.93	23.33	30.51
More Rights should be given to the Village Community	24.14	30.00	27.12
Lesser Interference of the forest staff	13.79	23.33	15.06
Timber Wood Should be given on the basis of the increased population	34.43	46.66	40.68
Easy process of Sanctioning the Timber Wood should be introduced	26.50	30.20	23.10

suggestions of 40.68 per cent households that revision should be made in the quota and the quantity of timber wood should be enhanced. For collecting some of the forest products, the households have to obtain permission from forest department. The households feel that the procedure in which sanctions are made to them is a lengthy process and time consuming method. In this regard 23.10 per cent households suggested an easy procedure be adopted in approving the requests of the households to procure forest products in general and timber wood in particular (Table IV.20). By and large, a variation has been observed in the proportion of households suggesting different changes in the forest policy as far as individual sample villages are concerned.

Table IV.20 : Awareness About the Environment problem Among the Sample Households

Suggestions Regarding Conservation of Environment	Nakra	Satgal	Total
No. of Households in the Sample	29	30	59
Respondents Aware about the adverse affect on environment due to indiscriminate felling of trees	79.31	73.33	76.27
Proper Forest Management is needed	31.03	20.00	25.42
Plantation should be made on Barren Lands also	27.58	30.00	23.01
Indiscriminate Felling of Trees should be Checked	34.48	43.33	39.93
Quick Growing Fuel Trees also be Planted	13.79	26.66	20.34
Independent Cell should be created to check the field staff of the Forest Department	17.24	23.33	20.34

The unscientific felling of trees and indiscriminate exploitation of forest wealth are associated with the severe problem of environmental and ecological imbalances in the hill region. The existence of human beings and their development are closely linked with the level of forest resources. In the present time, environmental and ecological problems have attracted the attention of all the concerned persons and institutions. Keeping in view the magnitude of the problem of environment and ecology in the hill region, it becomes imperative to examine the level of

awareness about environmental problem and knowledge of adverse effects on ecology due to indiscriminate felling of trees among the local people who are users of forest resource on the one hand and the sufferers of the consequences of deforestation. Data in this regard indicated that 76.27 per cent of the households were found aware of the adverse affects on environment due to indiscriminate felling of trees (Table IV.20). In the individual sample villages, the proportion of households was recorded higher 79.31 per cent in village Neera who were aware about the adverse affect of deforestation pattern as compared to village Satgal where the percentage of aware respondents was 73.33.

The households have suggested some measures regarding the conservation of environment in the hill region. Need of proper forest management is one of the suggestions given by 25.42 per cent households. In the concept of forest management, the household pointed out that the permission of cutting the trees should be allowed to the only mature trees and plantation of trees should be made immediately after the cutting of trees. At the sametime, trees should be planted in the forest areas where the trees are absent or thinly planted. Government should not allow the indiscriminate and unscientific felling of trees. Similarly plantation should be made on the barren lands whether it is under forest area or not. This was the opinion of 23.25 per cent households (Table IV.20). The households were seen more concerned about the indiscriminate felling of trees in the hill region and the households reported that forest contractors usually cut the trees several times more than the number of trees approved to

them. Perhaps this is done by mutual understanding of forest staff at field and the forest contractors to whom the sanctions are made. About 39.00 per cent respondents wanted a complete check on the practice of indiscriminate felling of trees. Plantation of quick growing trees for the purpose of fuelwood has been one of the measures for conserving the environment as suggested by 20.34 per cent households. The households were of the view that the quick growing trees for fuelwood should be planted on rotation basis. Involvement of local people should be encouraged in growing fuelwood trees. Some of the households were also of the view that deforestation has been the result of negligence of the forest field staff and due to corruption in the forest department this problem has emerged to great extent and the forest officials in the field duty are responsible for the indiscriminate felling of the trees. This was the claim of 20.34 per cent households. The individual sample villages did not show any significant differentials in the suggestions of different measures for the conservation of environment and ecology. However, the proportion of respondents varied in giving these measures. On the whole one observes that while the people are aware of the importance of the hills and have even suggested ways and means of forest conservation, they have also been clamouring for greater rights which is in contrast to the objective of forest management.

This is the main dilemma which the forest department has to overcome. Requirements of people and of the environment are generally self-contradictory. Thus an ideal forest policy is one which can strike an optimum balance between the two. It would be appropriate if the people can be educated even more regarding the significance of the forests and to incorporate their active cooperation if the policies of the forest department are to meet with greater degree of success.

CHAPTER V

Summary and Conclusion

Introduction

Forests are an important natural resource and play a key role in the development of a country. In our country forests have held a special place from the spiritual point of view as well as they have attracted various saints for their meditation. These saints have come out with famous philosophical works in the course of their meditation. Forests provide economic as well as non-economic benefits. Among the most important economic benefits provided by forests is that they are a crucial source of renewable energy. In a country like ours where commercial sources are scarce as well as expensive firewood has been the dominant fuel especially in the villages. Forests are also a source for providing employment to a large number of persons. They also provide raw material for a number of small scale and cottage industries as well as other industries, such as bidi, resin tapping, mat making paper, plywood, matches, sports goods and agricultural implements, etc. As forests are the natural habitat of wild animals, a number of forest areas are converted into sanctuaries in order to protect the wild life. These sanctuaries become centres of tourist attraction. As a result of these factors forests become an important source of revenue.

The non-economic benefits may not be easy to quantify, yet their relevance can not be undermined. First of all forests help in the amelioration of climate by influencing temperature, rainfall, humidity and wind velocity. They conserve moisture and check soil erosion and floods. They check environmental pollution. In this manner they protect the environment and can improve the quality of life.

Despite the fact that these benefits have been known and accepted no serious thought was given on forest conservation and forest management for a long time and so the forest wealth of the country was allowed to be depleted indiscriminately. As a result the once dense forests were reduced to barren land thereby endangering the very environment. What is of significance is that forest can affect not only the area surrounding them but the country as a whole and thus forests assume national importance. Forest management thus becomes very important since it has to judiciously take care of the environmental as well as the developmental needs of the nation and also cater to the needs of the population living around forests.

With these factors in the background the Giri Institute of Development Studies, Lucknow, decided to undertake a short study with the objective of analysing the forest policy of the government in a historical perspective starting from the initial to the present forest policy. The other main objective was to try and get an insight into the problems faced by the rural population residing in the hill districts of Uttar Pradesh with respect to

fuel, timber and grazing. Finally the study wished to suggest some suitable changes which can be brought about so as to meet the needs of the people and yet maintain the ecological balance.

The study is based on secondary as well as primary data. Secondary information was collected from the Forest Offices located in Lucknow, Pithoragarh and Nainital. For the primary survey Pithoragarh district was selected. Two villages of Pithoragarh were selected. Of these one got its requirements from a reserved forest and the other from a Panchayat forest. Selection was also based on distance from the forest so one village close to the forest while the second relatively far from the forest was selected.

Developments in the Forest Policy

The forest policy assumes great significance since it deals with social and economic aspects of forests and has a very broad spectrum. It has to keep the interest of the users on one hand and the environmental needs of the country on the other. It has to be designed in such a way as to provide for stability in forest finance and aim at securing highest degree of uniformity possible. Since times immemorial man's struggle for existence has been his struggle to reclaim forests for cultivation. Thus, one of the pressing needs of a forest policy lies in striking a balance between land use under forestry and cultivation in keeping with the long-term interests of the national economy.

In India timber, particularly teak, was in demand for several purposes at a time when steel, cement and coal were not known. During this period forests were heavily exploited by traders in a highly wasteful manner. In 1342 the government took the first step in forest management by declaring teak a reserved tree and the first teak plantation was also begun at Nilambur, Madras.

The first Forest Act was passed in 1865 (This was later revised in 1878 and 1927). The act defined the legal status of forests and laid down the procedure for reservation of forests. The government wanted to attain the standard of forest management as obtained in western Europe. It was felt that this could be achieved through proper research, by developing appropriate working plans and by ensuring sustained annual yield. This led to favourable results. High efficiency was achieved in research and over 30 per cent of the forests were under working plans. In 1878 the Forest School, now the Forest Research Institute, at Dehra Dun was set up to train the forest staff.

In 1934 the government made a pronouncement on forest policy and set out five important principles under which

- (a) Sufficient forests had to be retained to preserve the climatic and physical needs. This was to be accorded top priority;
- (b) The second most important aspect was to have enough forest area so as to meet the people's needs;

- (c) Cultivation was more important than forests, so forests could be cut to allow permanent cultivation but not by reducing forests below the required minimum;
- (d) The requirements of the rural people were to be provided free or at concessional rates without caring for loss in revenue; and
- (e) After the above needs were satisfied, revenue was to be realised to the fullest possible extent.

Thus the pronouncement was an excellent document since it covered every aspect. It laid emphasis on environmental conservation and gave it top priority. It visualised the fact that a minimum area must always be under forests. Moreover the welfare aspect was also given due importance by making the provision of providing forest products to the rural and local population free or at concessional rates. The circular also classified forests on the basis of these principles. However, in actual practice the classification was more of academic value since the four-fold classification which was made of the forests was not exclusive and forests could fall in more than one category. Moreover, the policy did not mention the principle of sustained yield. In short, although the forest policy itself was sound in principle, it was given limited application.

The plans of forest management received a serious set back as a result of war fellings. Prior to the war the position of forests was favourable. Working plans legislated for periodic

stock taking and, although forests were not fully productive, they had progressed satisfactorily since the forest department had taken over their charge. Despite the fact that war fellings were substantial they had not very seriously affected the climatic and physical functions of the reserve forests. But the working plans had been seriously affected. The forests were in need of prevention from any further destruction and proper protection. The depleted forest areas required regeneration.

Thus the initiation of the forest policy had been made during the British period itself. By the eve of our independence various developments of far reaching importance had taken place. In the first place population had gone up considerably and so there was a relentless pressure on forests and wastelands to secure more and more land for agriculture. Moreover, the significance of forests for ameliorating the climate had been better understood. Besides this the war had caused heavy depletion and the post war schemes of reconstruction further increased the pressure on forests. Thus there was an urgent need to spell out a National Forest Policy to suit the changed circumstances.

The new approach to the National Forest Policy was initiated by Shri K.M. Munshi who stressed the need on paying immediate attention to forests. The Board of Forestry was constituted so as to integrate the forest policy in order to come up with a National Forest Policy. The National Forest Policy was announced in May 1952 and laid down six paramount needs:

- (a) the need for evolving a system of balanced and complementary land use;
- (b) the need for checking : (i) denudation; and (b) soil erosion;
- (c) the need to establish tree-lands wherever possible to preserve the environment;
- (d) to increase supplies of grazing, small wood for agricultural implements and fuelwood so that cowdung may be used for manure rather than as fuel;
- (e) to have sustained supply of timber for various industries; and,
- (f) to realise maximum revenue in keeping with the other objectives.

The forests were classified into four categories, viz. Protection forests, National forests, Village forests and tree-lands. However, these classifications were not mutually exclusive since each type of forest performs more than one function. It was felt that since forests are of great national significance, they should be administered from the point of view of national well-being irrespective of their function and ownership.

Proper land use was considered desirable under which each type of land should be allotted to that particular use under which it would produce most and deteriorate least. The National Forest Policy laid down that the country as a whole should maintain one-

third of its land area under forests and that this area be 60 per cent in the hilly regions to prevent denudation. In the plains, however, it may be 20 per cent. The National Forest Policy also gave due thought to the problems of grazing and laid down certain policies.

As the years passed there was an ever increasing demand on fuel, fodder and other forest produce. These called for some amendments in the existing forest policy and the same was brought about in 1988. Stress was laid on maintaining environmental stability, to protect the flora and fauna, avoiding soil erosion and desert lands, to reclaim poor quality land through afforestation, meet the needs of the local people and the industries by increasing productivity of forests, and to launch an extensive mass movement through the active co-operation of women.

This, in short, gives an idea of how developments in the forest policy took place in India starting from the British period to the present period.

Forests and Forest Policy in the Context of U.P. Hills

During the British Raj conflicts over forest claims were very common as they were aimed to indicate dissent against the British. Forest administration during their period may be sub-divided into four periods. The first begins from the British occupation of Kumaun and Garhwal (1815) and ends in 1878 when the forest act was passed. Village boundaries were demarcated and people exercised their various rights. Forests were mercilessly cut down.

The second period (1878-1893) was one during which different forest tracts were demarcated and declared as protected forest in Almora, Nainital and Garhwal. However, the common villager of the hills was unaffected since these forests lay in the Bhabhar region at the foothills.

Towards the end of 1893 all wastelands were identified as protected forests and a policy of forest conservation was adopted. Thus the third period (1894-1910) was the period when eight forest species were notified for preservation. Besides this the protected forests were classified as 'closed civil forests' where the District Magistrate had control over the people's rights and concessions, and the 'open forests' where the people exercised their rights freely.

During the final phase (1911-1947) the British policy was mainly to survey, examine and demarcate extensive areas of trackless forests and to organise their protection. This period too witnessed uncontrolled grazing, theft and indiscriminate fellings.

The people of the hills had been resenting the schemes of forest management since they felt that their rights were being encroached upon and also because some specified classes were enjoying special privileges. Resentment came to the forefront for the first time during 1906 and continued almost regularly. In 1916 a Kumaun Association was formed to deal with the forest problem. In 1921 the government appointed a committee and gave a free hand to villagers regarding felling of trees. Thus maximum

deforestation took place between 1924 and 1926. Once again there was an unrest during 1930-31 and the rights and concessions was raised once again in 1938 and grazing rights were relaxed. Further relaxation in grazing rights was provided in 1941. Although there was no change in the forest policy till independence, a legacy of suspicion and resentment had been created and this malady could not be entirely cured even after independence and continues to affect the people's response to schemes of forest management even today.

The Forests of U.P. and its Hill Region

The land use statistics of the state indicate that during 1950-51 the forest area was just short of 11 per cent to the total area. By 1960-61 the percentage had touched almost 13 per cent and the same by 1977-78 was 17.27 per cent. Thus there had been an increase in the total area under forests after the National Forest Policy was announced in 1952. However, forest area is short of the prescribed norm.

The forest of U.P. are mainly confined to the hill region, which comprises of eight districts, the Terai and Bhabhar region, the Bundelkhand area and Mirzapur. The forests of the state are classified as reserved forests which are under the control of the forest department, the civil/soyam forests under the control of the District Magistrates and the Panchayat forest which are under the control of the village panchayats. Besides these a small proportion of forests are privately owned or managed by the municipalities or cantonments.

In the hill region around 69 per cent of the total forest area are classified as reserved forests. There are wide variations among the eight districts and so we have on the one hand Uttar Kashi where the reserved forests constitute nearly 99 per cent of the total area. On the other hand Almora has the lowest percentage (37.5 per cent) area under reserved forests. Around 23.4 per cent of the total forests are civil/soyam forests. In this category Almora heads the list of hill districts (46.44 per cent) while Uttar Kashi is at the bottom (approx. 2 per cent). Panchayat forests constitute less than 7 per cent of the total forest area of the state. Among the hill districts the highest area is found in Pithoragarh (21.6 per cent). Dehradun, Tehri Garhwal and Uttar Kashi do not have panchayat forests. The hill region alone accounts for around two-thirds of the total forest area of the state and around 67 per cent of the area of the hill region is under forests.

Between 1951-52 and 1973-74 the forests were cut down rather heavily in order to meet the developmental needs such as construction of roads and dams, to reclaim land for agriculture and for setting up industries. After 1973-74, however, there has been a distinct check after the announcement of the Forest Conservation Act. While deforestation was essential for achieving development the forest department simultaneously undertook various afforestation programmes as well to restore the depleted forest wealth. Thus the forest department has been making efforts to ensure that the economic and environmental needs are carried out on a sustained basis.

The forests are an important source of revenue to the state and investments too are made on them to sustain them. Over the years expenditures have been going up faster than the revenue earned from the forests. Revenue is earned mainly through the sale of timber to various industries, fuelwood and the sale of a number of minor forest products. Besides the revenue earning activity the forest department also has provided certain rights to the village population under which forest produce is made available to them either free or at concessional rates. Thus even the welfare aspect is given due consideration.

The forest area statistics provided by the official agency has led to considerable controversy since the data given by the National Remote Sensing Agency (N.R.S.A.) was much lower than the official estimates. In order to reconcile the conflicting figures the Forest Survey of India made a detailed study of the landsat imagery data and then came up with its own figure which lies between the official estimates and the estimates provided by N.R.S.A. According to the Forest Survey of India 10.7 per cent of the geographical area of the state was under forests (1981-83). The Forest Survey of India has also classified forests according to type and indicated the different altitudes at which these forests are located. According to the Forest Survey of India, the forest area has gone up from 10.7 per cent during 1981-83 to 11.5 per cent between 1985-87. As far as the hill region is concerned it accounts for around two-thirds of the total forest area of the state. Besides this in the hill region itself only 27.8 per cent of the total area is under forests. Thus we see that both the

state as well as the hill region are much below the norm laid down in the National Forest Policy (1952) of one-third and 60 per cent forest area respectively.

The conflicting data provide by official sources and N.R.C.A. has its roots in interpretation. The landsat imagery data gives figures of actual forest coverage. As against this the official statistics are based on data of the revenue department which classifies forests from an administrative basis irrespective of actual forest coverage. Thus if we are to go strictly from the ecological point of view the landsat imagery data should be considered more relevant. The official data, on the other hand, would indicate the forest potential of the state and so every possible effort should be made to increase forest cover over this area without allowing it to be put to any other use.

Main Findings of the Primary Survey

In order to study the impact of the forest policy on the people of U.P. hills a short survey of two villages of Pithoragarh, viz. Neera and Satgal was carried out and a total of 59 households were surveyed. Village selection was done such that one village was close to the forest while the second was relatively farther off. The main findings of the survey are being outlined below.

The average age of the head of the household was found to be 46.95 years and maximum number were concentrated in the age group 41-60 years. The head of the households were not very educated

since only 5.02 per cent had received education upto intermediate or above. The average size of the family was around 5.6 persons and, on an average, each household had a land holding size of 0.39 acres with around 6 per cent households being landless households. Every household was keeping animals.

The head of the households were in different primary occupations. Agricultural was most important (52.5 per cent) followed by service (30.5 per cent). As many as 57.6 per cent households also had a secondary source of income. The average household income from all sources was found to be around Rs.12700 per annum.

Fuelwood is the predominant source of energy for cooking. Interestingly cowdung was not being used in either village. However, a few households were using kerosene oil or L.P.G. although not on a regular basis. The collection of fuelwood and its pattern depends on its availability, distance at which village is located from the forest, family composition, prevailing practices, availability of time and on the season of the year. However, the dominant factors are distance from forest and availability of fuelwood. On an average around one-fifth of the households collect fuelwood on a weekly basis, another 33 per cent once a month while the remaining (41 per cent) collect fuel during a specific period only. Most of these households belong to the village which is located far from the forest.

As a result of depletion of forests people have to cover a longer distance for collecting firewood and thus it is a time

consuming process. Nearly 41 per cent households have to travel 3 - 10 kms. to collect wood. The overall average distance is around 5.25 kms. and on an average 5 hours are spent each time a household member goes out to collect firewood. Since there was variation between the sample villages regarding distance from the forest, this was automatically reflected in the time spent on collection of fuelwood.

Among the rights enjoyed by the villagers is the right to timber for building purpose. Only around 33 per cent of the sample households had applied for trees of which two-thirds had been allotted trees by the forest department. Most of these households have complained that the timber supplied was not sufficient to meet their needs. Thus many a times they have had to purchase timber from the market.

The partial and occasional use of fuels like kerosene oil and L.P.G. is a clear indication of the fact that over the years there has been some change in the consumption pattern of fuel for cooking. This has of course been necessitated by the fact that over the years there has been an increasing problem regarding the availability of fuelwood and so people have been forced to think in terms of alternative fuel. The use of L.P.G. reflects on the capacity to afford the fuel. It is only the better off households which can afford to do their cooking on L.P.G. in the villages. However, three-fourths of the households are still dependant on fuelwood. As a result of depletion of forests people have to travel much longer distances for the collection of firewood as compared to a few years back.

The villagers residing in our sample villages highlighted the various problems which they are faced with. The foremost among them being the long distances which have to be covered in order to fulfil their fuel needs. This takes away valuable time and adds to the fatigue.

It is pointed out that there are times when the staff of the forest department interferes unnecessarily in their activities and this poses problems in the procurement of the different forest products which the people collect from the forest. They also pointed out that some of the existing procedures are cumbersome and time consuming with the result that unnecessary delays are caused. This has given rise to corruption since those who can afford to please the local staff get their work done easily whereas the common man is the sufferer. There is considerable resentment against the preferential treatment which is given to the influential sectors of the society for whom even the existing rules are at times by passed.

Grazing becomes a constant problem since over the years people have started keeping relatively more animals and so the pressure on grazing land is a concern for which no ready solution is easily available.

At the time when rights of the villages were determined the population was much lower. However, over the years population has increased. This has led to problem of inadequate supply. Moreover, even new villages have come up over the years and they

do not figure in the list of villages which are entitled to rights and concessions. Their problems is very genuine as they themselves have no specific forest allotted to them. Consequently they have to look forward to their needs to the nearest forest where they face resistance from those who have been allotted that particular forest. Such villagers therefore feel that their rights should also be protected as is the case with the other villagers.

The survey had also aimed at trying to find out whether or not the villagers are aware of the crucial function of environmental conservation of the forests or that they simply see forests from the point of view of satisfaction of their economic needs. It was heartening to note that three-fourths of them were aware of the fact that forests are vital for the environmental needs and that the forest wealth should not be depleted indiscriminately. They expressed the view that while it was necessary to cut trees for industrial and domestic needs only the old and mature trees should be cut down. This should be compensated by planting new ones. Thus they have a fair knowledge of forest management because they have also come out with suggestions of growing different varieties of trees so as to be able to meet the various needs of the people. The villagers accuse the influential persons of indulging in unlawful felling of trees in connivance with some forest staff. They, therefore, suggest that the senior forest officials should keep making surprise visits and also increase their regular visits.

An Overview and Some Suggestions

Forests are very crucial from the point of view of their economic functions and equally, if not more, from the point of view of environmental conservation. There was a time when people were hardly aware of the multifaceted role played by forests and so forests were cut down mercilessly. The first steps in forest management were taken up during the British period and the first Forest Act was passed as early as 1865. This was followed by amendments in 1878 and 1927. After independence the National Forest Policy was announced in 1952. The year 1930 witnessed the Forest Conservation Act and in 1933 some minor amendments were made in the forest policy in keeping with the changed requirements.

The village population has always enjoyed certain rights in the forests by virtue of which they have used forest products either free or at concessional rates. The introduction of the forest act was always viewed with suspicion and resentment as people felt that these were encroaching upon their rights. From time to time even their rights were duly revised in accordance of their needs. But even after independence the legacy of suspicion and resentment have not been fully cured even though people are today aware of the fact that forest conservation and scientific forest management are as essential for the nation as a whole as it is for their own well-being.

One feels that the problems relating to forests can be traced down to the rapid increase in population on one hand and the increasing developmental needs on the other. Both factors have maintained a relentless pressure on the forests. These needs are in direct conflict with the need for environmental conservation. Thus any effective forest policy has to ensure that a balance is struck between the two objectives.

Then there was a conflict between official data regarding forest area and the data based on landsat imagery. While the former included all area which was under the forest department, the latter related to actual forest area only and was therefore much less as compared to official estimates. What is, therefore, of utmost importance is that the entire forest area under the forest department should be utilised for developing forests and should not be put to any other use. It is heartening to note that the forest department is making earnest efforts at restoring the depleted forest areas by implementing various schemes and is very strict in allowing the use of forest area even for development purposes especially after the introduction of the forest conservation act.

The hill population which is highly dependent on the forests has certainly been put to various difficulties as a result of depletion of forests in that region and the resulting policies which have been adopted by the forest department to restore the forest wealth. First and foremost has been the problem of firewood. Lesser amount of firewood is available today as

compared to the earlier period and what is now available too is not always close to the villages. The village community has, therefore, to travel greater distances in order to satisfy their firewood requirements. This involves more time, greater energy and at times even the cost of transportation. In areas where people obtain their supply for the full year during a specified time, they have even to employ hired labour such that they can fulfil their requirements in a specified time.

Even with regard to grazing of cattle people have been having difficulty of finding sufficient grazing land. Likewise, people are also faced with problems regarding the availability of timber for different uses as well as other minor forest produce.

In the light of what has been said so far we can think of the following suggestions which may be incorporated :

- (i) We feel that all those villages who could not be listed in SCHEDULE B for forest rights and quotas have a genuine problem and so they too should be included.
- (ii) There is an urgent need to educate people on the significance of the forests. It is not that people are not aware but they have to be properly motivated such that they voluntarily begin to respect and obey forest laws rather than have a feeling of resentment towards them. The government has to put together a team of dedicated workers who can go round and educate people in this regard. In fact the 1938 amendment

proposed to launch an extensive mass movement through the cooperation of women. In the hill region in particular it is the women folk who are engaged in work including procurement of firewood from forests. And if they can be educated it would prove most profitable.

(iii) The forest department could even think in terms of the involvement of the hill people in the various programmes. In case they are aware of the programme they can then contribute positively towards them. Similarly if they are also kept informed regarding the area and total trees which a forest contractor has been allowed to cut down they can prove an effective check on him thereby reducing the incidence of illegal cutting.

(iv) To check irregularities and ensure proper implementation a joint-committee comprising of representatives of the forest department and some local people should be set up. This would prove a deterrent to allegations and counter allegations which the forest department and the people have been making.

(v) The civil/scyam forests have been mainly involved in afforestation. As yet they are not open to the public and so they are not fully aware of their specific role. People must, therefore, be made aware of their significance even though they are not to be made open for public use in the near future.

- (vi) prior to undertaking any afforestation programme a proper survey should be conducted regarding the species that had grown there and also whether the area is more suited to any other species of trees. It can also be assessed as to which of these species will be best so as to fulfil the various needs on a sustained basis.
- (vii) No green fellings should be allowed. Although rules to this effect are already there, greater care should be taken and all strictness to be applied to enforce the rule. Only mature and dry trees should be allowed to be cut down and that too on the basis of actual requirement.
- (viii) The degraded forest areas and barren lands should be afforested, wherever possible, by fast growing species from the point of view of meeting the fuel needs of the village population of the hill areas.
- (ix) The question of grazing has always been a controversial one as grazing in forests is incompatible with scientific forestry. Yet it has to be accepted since it does take place. It should, therefore, be regulated as regards the time and place and also the number of cattle admitted. Continuous grazing on the same area by large herds should be prohibited. Efforts should be made to introduce rotational grazing.

- (x) It has been pointed out that the Forest Conservation Act at times causes delays in the developmental programmes of the government itself, particularly in the hills where the Ministry of Environment and Forests is very strict. In such cases the government agency developing the programme must apply for clearance well in time to avoid these delays.
- (xi) The way in which pressure of population has been going up it seems fairly evident that it will not be possible for the forests of the hill region to be able to meet the growing demands of fuel of the local people. Under such circumstances it becomes imperative to encourage people to opt for alternative sources of energy whether it is L.P.G., kerosene, bio-gas or solar energy. Of course, it is not going to be easy to affect this change since people have been used to the idea of obtaining firewood free of cost and it would certainly be taking on the poorer sections of the society if they are asked to pay for the fuel. However, this is a reality which has to be accepted and the sooner it is done the better. A small subsidy could be granted for if the forests are depleted then the government has to incur heavy expenses on afforestation and regeneration of forests. If the loss of forest wealth can be minimised the savings thereby made could be diverted to providing subsidy.
- (xii) The use of timber for building purposes is being minimised these days by using steel frames. These alternative uses too should be encouraged. Similarly even furniture other than

steel have become popular. All these should contribute towards reducing pressure on the forests.

(xiii) In order to check the activities of the forest staff it would be appropriate if the senior officials make surprise visits in order to assess the actual situation from time to time.

(xiv) In order to carry out an effective policy of forest management the forest department should have a very strong data base. This would provide information relating to area, type of forests, etc. and then effective programmes can be chalked out in keeping with the specific requirements of a specific area.

At present, for instance, a working plan covers a division. Among divisions there is overlapping in the sense that a district, in part, may figure in two separate divisions. Thus from the working plans it may not be possible to have details of such a district.

(xv) The forest policy should keep the national interest above everything else and should continue to accord top priority to environmental conservation. The strictness of the forest department does influence the present day to day needs of the people, but if we take the long term perspective in mind it is quite clear that these policies are in the interest of one and all and that quick gains may lead to irreparable damage.

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